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RECREATIONAL CAPABILITY AND LAND USE PLANNING, PRIEST LAKE, IDAHO

by

© MARY ELIZABETH CORBETT

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH
IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE
OF MASTER OF ARTS

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled Recreational Capability and Land Use Planning, Priest Lake, Idaho submitted by Mary Elizabeth Corbett in partial fulfilment of the requirements for the degree of Master of Arts.

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ABSTRACT

In this thesis outdoor recreation in the Priest Lake area of Idaho is examined. This area has become increasingly popular in recent years, and consequently is experiencing growing pressure on its recreational resources.

A consideration of the reasons for the popularity of the area are followed by an examination of land use and jurisdiction patterns of the Priest Lake shorelands, in order to establish how well the land is currently being used, and its potential for change. The physical capability of the lake to support recreation is determined by the Canada Land Inventory Capability Classification for Outdoor Recreation. This not only provides a relatively objective method of classification, but also permits comparison. The capability classification is described and illustrated in the text.

A questionnaire survey of a sample of campers and cottagers who visit the lake was completed so that usage of the lake and the opinions and desires of the users could be better understood. The survey also allows for comparison between the two user groups.

The conclusions drawn from the study are that even without changes in present land use there remains one-third of the total area which could be developed for public recreational use. With changes in present land use 36 per cent of the land owned by the State of Idaho and the National Forest Service could be put to public recreational use. Finally, cottagers are more tolerant in their demands than campers. The main aim of the thesis was to review and evaluate, and for this reason, while management problems have been briefly considered, firm planning proposals have not been made.

TABLE OF CONTENTS

CHAPTER	PAGE
I. INTRODUCTION	1
Spatial Problems of the Increase in Demand for Outdoor Recreation Space	2
Relationship of the Study to Geography	6
Planning Concepts	7
Identification of the Research Problem	9
Research Objective	10
Established Plans for Priest Lake	11
Research Methods	15
Field Research	15
Other Data	16
Presentation of the Thesis	16
II. DESCRIPTION OF THE PRIEST LAKE AREA	18
Site and Situation	18
Geology of the Area	24
Climate	26
Flora and Fauna	28
History	32
Area Users	33
Summary	34
III. PRESENT LAND USE AND JURISDICTION OF THE PRIEST LAKE SHORELANDS	35
Ownership Patterns and Leasing Procedures	36
Description of Use Zones	42
Use Zone 1	42
Use Zone 2	49
Use Zone 3	50
Use Zone 4	53
Use Zone 5	55
Use Zone 6	56
Use Zone 7	58
Use Zone 8	59

CHAPTER PAGE

Use Zone 9 60

Use Zone 10 61

Use Zone 11 62

Use Zone 12 62

Use Zone 13 63

Use Zone 14 65

Use Zone 15 65

Use Zone 16 65

Use Zone 17 66

Use Zone 18 66

Island Zone 67

Upper Priest Lake Zone 68

The Thorofare 69

Summary 70

IV. CAPABILITY OF THE PRIEST LAKE SHORELANDS FOR RECREATIONAL USE 73

The Canada Land Inventory 73

Recreation Sector 73

Application of Land Inventory to Priest Lake 82

Field Procedures 82

Subclass Ordering 83

Evaluation 87

Notable Lakeshore Units 95

(i) Capability Class 1 95

(ii) Capability Class 2 97

(iii) Capability Class 3 99

(iv) Capability Class 4 105

(v) Capability Class 5 106

(vi) The Thorofare 108

CLI Land Units -- Summary for Evaluation 111

V. CAMPER AND COTTAGER SURVEYS 117

Cottager Survey 118

Basic Methodology 118

Analysis of Data 119

CHAPTER PAGE

Some Objective Observations 135

Summary for the Cottager Survey 137

Camper Survey 140

Basic Methodology 141

Analysis of Data 146

Summary for the Camper Survey 174

Summary 179

VI CONCLUSION 182

Results from the Study 183

Land Use and Jurisdiction 183

Canada Land Inventory 183

Public Use Potential 184

Camper and Cottager Surveys 192

Integration of Information 195

Relevance for Planning 197

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BIBLIOGRAPHY 203

APPENDICES 210

APPENDIX A. FIELD SHEET FOR CLI SITES 211

APPENDIX B. COTTAGER QUESTIONNAIRE 212

APPENDIX C. CAMPER QUESTIONNAIRE 215

LIST OF TABLES

Table	Description	Page
1	Priest Lake: Jurisdiction and Use of Shoreline	70
2	The Seven Capability Classes	76
3	CLI Recreation Features or Subclasses	78
4	CLI Classification	81
5	Comparison of Sites -- 3BNY	84
6	Capability Class 3 -- Subclass Ordering	85
7	Outdoor Recreation Capability Classifications for Priest Lake	88
8	CLI Land Units in Capability Class 1	112
9	CLI Land Units in Capability Class 2	112
10	CLI Land Units in Capability Class 3	114
11	CLI Land Units in Capability Class 4	115
12	Permanent Residence of Cottage Owners	120
13	Ownership of Cottages	121
14	Time Spent at Cottage During Summer	122
15	Remaining Years on Lease and Original Lease	123
16	Government Controls and Lot Location	124
17	Site Location Factors	125
18	Desirable Cottage Site Characteristics	126
19	Accepted Beach Materials	127
20	Lake Bottom Materials	128
21	Offshore Slope	129
22	Conditions Desirable for Swimming	129
23	Walking Time to Water from Cottage	130
24	Preferred Cottage Site Access	131
25	Public Use of Water Frontage	132
26	Yearly Use of the Lakeshore Area	133
27	Opinions on Yearly Use of the Lakeshore	134
28	Likes and Dislikes of the Shore Area	135
29	Improved Campgrounds	140
30	Survey Sites	142

Table	Description	Page
31	Origin Analysis of Resident and Non-Resident Camping Use for Indian Creek Campground during 1972	148
32	Years Coming to Priest Lake	149
33	Days Spent in the Priest Lake Area by Campers	149
34	Charge for User Fees	150
35	Reasons for and against User Fees by Campsite (Number of Respondents)	152
36	Reservations for Recreation Sites?	154
37	Higher Cost to Have a Site Reserved?	155
38	Length-of-stay Influence by Campsite	156
39	Length-of-stay Limit Enforcement	158
40	Reasons for Site Selection by Campsite	162
41	Beach Materials for Campsites	163
42	Condition of Bottom	164
43	Modes of Beach Access	166
44	Walking Time from Water to Campsite	167
45	Importance of Privacy by Campsite	169
46	Present Development of the Priest Lake Area	171
47	Development Potential for Class 1 Sites	187
48	Development Potential for Class 2 Sites	187
49	Development Potential for Class 3 Sites	189
50	Development Potential for Class 4 Sites	190
51	A Comparison of Potential Use	192

LIST OF FIGURES

Figure	Description	Page
1	Priest Lake Region	19
2	Priest Lake, Idaho Terrain	21
2A	Priest Lake, Idaho Terrain	22
2B	Priest Lake, Idaho Terrain	23
3	Priest Lake	27
3A	Priest Lake	29
3B	Priest Lake	31
4	Land Use Zones and Jurisdiction	44
4A	Land Use Zones and Jurisdiction	45
4B	Land Use Zones and Jurisdiction	46
4C	Land Use Zones and Jurisdiction	47
4D	Land Use Zones and Jurisdiction	48
5	Outlet Campground	51
5A	Osprey Campground	52
5B	Luby Bay Campground	54
5C	Reeder Bay Campground	57
5D	Indian Creek Campground	64
6	Land Use and the Canada Land Inventory Ratings	90
6A	Land Use and the Canada Land Inventory Ratings	91
6B	Land Use and the Canada Land Inventory Ratings	92
6C	Land Use and the Canada Land Inventory Ratings	93
6D	Land Use and the Canada Land Inventory Ratings	94
7	Response Cards Which Were Used	143
8	Campgrounds	144
8A	Campgrounds	145
8B	Campgrounds	146

LIST OF PHOTOGRAPHIC PLATES

Plate	Description	Page
1	Indian Creek State Park, 1BKY	96
2	The 1BKY site in Reeder Bay looking to the north-east	96
3	Squaw Bay on the east shore, 1BKY	98
4	North Cove Campground on Kalispell Island, 2BKY	98
5	A 2BNY site on the south end of the lake, west of Coolin	100
6	Kalispell Bay, a 2BNY site located west of Linger Longer Resort	100
7	An example of a 3BKY site, Tripod Point on the west side of the lake.	102
8	3BKY at the south-west end of the Beaver Creek Camp Association Tract	102
9	A 3BNY site located south of Tule Bay on the west shore of the lake	103
10	The west side of the lake south of Luby Bay, 4BWY	103
11	North of East Twin Island on Diamond International's land, a 4BYN site	104
12	The only beach on Fourmile Island, 4NYB	104
13	A 5A site, south of Woodrat Mine	107
14	A Kaniksu Batholith in the Upper Lake, 5RA	107
15	A 5DVY site along the east shore road near Cavanaugh Bay	109
16	A portion of the Thorofare, the entire channel of which has been rated 4QW	109
17	2BUC, at the outlet of the Upper Priest Lake into the Thorofare	110
18	Elkins Resort and Marina in Reeder Bay	110
19	A typical site in Outlet Campground	153
20	A site in Osprey Campground	153
21	A Reeder Bay Campground site	160
22	A well used site in Lower Luby Bay	160

CHAPTER I

INTRODUCTION

This thesis is concerned with outdoor recreation, that form of leisure-time activity that makes demands upon land and water resources. At its core is the notion of increasing scarcity, and therefore increasing competition, for these resources. As the demand for outdoor recreation space of all kinds increases, recreational interests are brought increasingly into competition and conflict with other demands for these same land and water resources. Professional and political judgments have to be exercised in making choices among the alternative uses, and planning becomes an indispensable mechanism for optimum resource use and management. This thesis is therefore presented as a case study of a recreational area (Priest Lake, Idaho) which is now coming under serious pressure as a result of a recent and rapid growth in recreational space demands.

The growth in demand for outdoor recreation space is well documented.[1] It is a widely recognized phenomenon which has been discussed by many American, British and Canadian authors. A single quotation must suffice to sum up their common conclusion:

---

[1] Only a small number of pertinent references are noted here. Two notable American sources are (i) M. Clawson, R.B.Held, G.H. Stoddard, Land for the Future, Resources for the Future, Inc. (Baltimore: Johns Hopkins Press, 1960) pp. 124-28 and (ii) the reports of the Outdoor Recreation Resources Review Commission, in particular, Study Report 26, Prospective Demand for Outdoor Recreation prepared by the Commission Staff (Washington, 1962), p. 49.

British contributions include (iii) T.L. Burton (editor), Recreation Research and Planning: A Symposium (London: George Allen and Unwin Ltd., 1970), pp. 1-45 and (iv) J. A. Patmore, Land and Leisure in England and Wales, Problems in Modern Geography (London: David and Charles, 1970), pp. 43-74. Canadian authors include (v) C. D. Taylor, "Demand for Recreation -- An Essential Tool for Resource Planning," in J. G. Nelson and R.C. Scace (eds.), The Canadian National Parks: Today and Tomorrow, Vol. II (Calgary, Alberta: University of Calgary, 1968), pp. 878-85, and (vi) L. Brooks, "The Forces Shaping Demand for Recreation Space in Canada," Resources for Tomorrow, Vol. 2 (Ottawa: Queen's Printer for Canada, 1961), pp. 957-67.

> All forms of outdoor recreation are used heavily today -- more heavily than at any time in history--and the trend of use for most of them is steeply upward. . . there is no clear sign of a diminution in the rate of growth. . . .[2]

SPATIAL PROBLEMS OF THE INCREASE IN DEMAND FOR OUTDOOR RECREATION SPACE

The increase in demand for outdoor recreation space causes competition among land uses, and spatial problems are the inevitable result. Spatial competition occurs because each parcel of land can be put to more than one use. As the amount of space available for varied use diminishes, the problem of choosing and implementing the most suitable land use increases.

The implications of this spatial conflict for outdoor recreation were noted as early as 1951 by a Canadian geographer, Wolfe. He pointed out that because of the intensity of agricultural use around large cities, people looking for recreational sites had to travel further from the city to find land that was not already committed to competitive uses.[3]

Spatial conflict was also referred to by Tunnard, who stated that there was a need to recognize the differences in demands for space by different users.[4] He spoke of competition between urban and rural uses, and between public and private uses, and of the conflict between use or preservation, where the questions concerning accessibility and public enjoyment were raised. To resolve these conflicts a compromise between land uses must take place. He said that recreational use should depend on the retention of the quality of the environment. The quantity of space may be related to frequency of use but the recreational experience depends on quality.[5]

---

[2] Clawson, Held and Stoddard, op. cit., footnote 1, p. 183.

[3] R.I. Wolfe, "Summer Cottages in Ontario," Economic Geography, 27 (1951), pp. 28 and 29.

[4] C. Tunnard and B. Pushkarev, Man Made America: Chaos or Control? (New Haven and London: Yale University Press, 1963), pp. 359-61.

Competition between recreation and other land uses as well as among recreation users was noted by David in 1968. He identified three separate groups that demonstrated conflicts of interest in the use of water resources.[6] One group wanted to maintain and enhance the natural environment, another was interested in using the water for recreational purposes, while the third group consisted chiefly of the industrial and municipal users. He also discussed conflicts among recreational users of the water resource. Because of the sharp increase in demand for recreational property, he felt that some of the attributes that the private market finds less desirable should not be a disadvantage to public development:

> Areas of swampy shoreline, for example, provide fish habitat for the entire lake and will appropriately be shared by the public sector. Any private owner will probably not recover enough of the benefits of improved habitat to reflect its social value.[7]

Lucas, in his study of the Boundary Waters Canoe Area, observed that there was competition among recreational users. He found that there was a notable difference between two groups of users in the study area.[8] Canoeists objected to encountering other people more than the motorboaters and motorcanoeists did. The canoeists viewed logging as more compatible with wilderness recreation than the crowding they felt from the motorboaters. The motorboaters were able to tolerate recreational use at higher levels.

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[5] Tunnard and Pushkarev, op. cit., footnote 4, p. 398.

[6] E.L.J. David, "Lakeshore Property Values -- A Guide to Public Investment in Recreation," Water Resources Research, Vol. 4, No. 4 (August, 1968), p. 697.

[7] David, op. cit., footnote 6, p. 706.

Hendee also recognized a conflict between types of recreation users.[9] There were those who wanted to maintain and use the natural environment and those who did not. The latter group, who wanted to have facilities such as campgrounds provided, were found to be more socially oriented than dependent upon the natural environment. A solution to this problem of different types of users requires that plans be laid down to govern the management and development of areas where both types of recreation could be experienced to avoid inappropriate development and use.

Intensity of use represents another conflict. The Outdoor Recreation Resources Review Commission in the publication, Outdoor Recreation for America, stated that it was possible to increase the supply of outdoor recreation resources without an increase in acreage.[10] If a given area is transferred from low density use, emphasizing the natural environment, to high density use, emphasizing facilities, more recreational opportunities are made available. "Intelligent concentration of use in this way can protect other natural environments by diverting mass pressures from them."[11]

---

[8] R. C. Lucas, "Wilderness Perception and Use: The Example of the Boundary Waters Canoe Area," Natural Resources Journal, Vol. 3, No. 1 (1964), pp. 394-403.

[9] J. C. Hendee, "Recreational Values, Use and Management of Natural Areas," Natural Areas -- Needs and Opportunities Symposium, 43rd Annual Meeting of Northwest Scientific Association, Proceedings (1970), pp. 35-38.

[10] Outdoor Recreation Resources Review Commission, Outdoor Recreation for America (Washington: United States Government Printing Office, 1962), p. 49.

Clawson presented another viewpoint on the concept of increased use. He argued that the direct effects of increased leisure on outdoor recreation are mostly adverse as people crowd onto popular areas.[12] Enough human feet can be as destructive as a bulldozer for wildlife, vegetation and, even, soil.

> We have obviously been exploiting original natural conditions as ruthlessly as did any timber baron or rancher. . . We have not yet learned how to practice sustained-yield management of popular outdoor recreation areas.[13]

Lime felt that there was a problem involving intensity of use among campground users. Campers want waterfront sites, spacing between the sites, and screening from neighbours.[14] Because of spatial restrictions, a limited number of waterfront sites can be built, so a compromise in campground planning is needed to preserve and protect the lakeshore and at the same time provide users with at least a view of the water.

The demonstrated competition for land between recreational and other uses, and among recreational uses, are present in the Priest Lake area with the conflict over intensity of use being of the greatest importance.

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[11] Outdoor Recreation Resources Review Commission, op. cit., footnote 10, p. 49.

[12] Marion Clawson, "Economics and Environmental Impacts of Increasing Leisure Activities," in F.F. Darling and J. P. Milton (editors), Future Environments of North America (Garden City, New York: The Natural History Press, 1965), pp. 248-57.

[13] Clawson, op. cit., footnote 12, p. 257.

[14] D.W. Lime, "Factors Influencing Campground Use in the Superior National Forest of Minnesota," USDA Forest Service Research Paper NC-60 (St. Paul, Minnesota: North Central Forest Experiment Station, 1971), pp. 15-16.

The concern with spatial conflict between various land uses has led the National Forest Service in the United States to institute a policy of multiple use. This requires that there be an integration of land uses wherever possible, so long as these uses do not interfere with the productivity of the land. However, the problem of conflict between uses of a similar nature, as between different types of recreation, still remains.

RELATIONSHIP OF THE STUDY TO GEOGRAPHY

> Space, spatial relations and change in space -- how physical space is structured, how men relate through space, how man has organized his society in space, and how our conception and use of space change -- are the core elements of the science of geography.[15]

Morrill has noted that there are three distinct approaches to geography: (i) to understand the uniqueness of a place or region, (ii) to discover the relation of man and the environment, and (iii) to systematically explain location and spatial interaction.[16]

This thesis is concerned with the recreational use of the shorelands of Priest Lake, Idaho. It will deal with the structure of the physical space of the Priest Lake area through a description of its geology, topography, climate, and flora and fauna. Analyses of present land use and land jurisdiction will illuminate some aspects of spatial relationships and spatial organization in the Priest Lake area, at least as far as outdoor recreational activities are concerned. Finally, conceptions of space will be approached in two ways: Through an analysis of the capability of the shorelands to sustain outdoor recreation, as measured by the Canada Land Inventory method, and from the attitudes of the present users and managers toward the environmental resources of Priest Lake.

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[15] R. L. Morrill, The Spatial Organization of Society (Belmont, California: Duxbury Press, 1971), p. 3.

[16] Morrill, *op*. *cit*., footnote 15, p. 3.

PLANNING CONCEPTS

Because of conflicts over available space, planning is necessary so that ". . . a better overall provision of facilities for leisure. . ." can be made.[16] Planning involves "the regulation of the use and development of land and of communication, including the deliberate promotion of development."[17]

Two basic concepts of the planning process have been developed. Both set out a sequence of steps through which the planner should proceed and, although there are general similarities, there are also important differences in detail and at least two major conceptual differences. The first concept, which might be regarded as the conventional approach, includes the following steps: (i) a survey of the planning area, (ii) an analysis of the survey data, (iii) the formulation of the plan, (iv) making the plan operational, (v) an evaluation of the way in which life goes on under the various aspects of the plan and, finally, (vi) the feedback of the results into the planning process for future modifications to the plan.[18]

The other concept of the planning process follows a rather different course. First (i) there is a decision to adopt planning, then (ii) the environment is scanned and, on the basis of values held by the planner or planning group, certain wants or needs become apparent, from this (iii) goals are formulated. A goal is an aim toward which planned action may be directed.[19] At this stage the precise objectives can be identified. Then (iv) possible courses of action to reach the objectives and a move towards the goals are outlined. These possible courses are evaluated and compared with reference to the means available, costs likely to be incurred and benefits to be derived, and the consequences of the action, as far as they can be foreseen. One of the alternatives is selected as a consequence of this evaluation. Finally, (v) the selected course of action is implemented and (vi) the environment continues to be scanned so that new goals and procedures may be developed.[20]

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[16] Burton, op. cit., footnote 1, p. 42.

[17] J. B. McLoughlin, Urban and Regional Planning: A Systems Approach (London: Faber and Faber, 1969), p. 96.

[18] J. Dakin, "Thoughts on Theory-Method in the Planning Process," Plan Canada, The Town Planning Institute of Canada, Vol. 1, No. 3 (1960), p. 143.

The first planning process shows the planner as a value-free technician, the objective professional producing the "best" solution to a problem. The second process admits that we live in a pluralistic society, where many different aspirations may be held. These aspirations influence the types of plans which are prepared and offer no single "best" solution. The second concept therefore differs from the first in the emphasis on goal formulation and the evaluation of alternative plans.

All plans have goals of some sort but usually they are stated in such a general manner that they do not define particular courses of action. There are many types of goals in planning. Some deal with aesthetic qualities, others are concerned with healthy and sanitary living conditions, and still others are concerned with economic health (the importance of this type of goal seems to be increasing);

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[19] R.B. Uleck, "The Challenge of Recreation Planning: Methodology and Factors to Consider," in Recreation Symposium Proceedings (Upper Darby, Pennsylvania: Northeastern Forest Experiment Station, 1971), p. 204.

[20] McLoughlin, *op. cit.*, footnote 17, p. 95.

accessibility may also be a goal.[21] Goals should reflect the wants, needs, attitudes and values held by segments of society for whom the planning is being developed. This type of social consideration is important because the plan is developed for people and should not be limited to just economic costs or benefits to the area.

The former planning sequence that was discussed does not offer any specific stage for goal formulation, this would probably result in formulation of goals that were not well defined. The latter planning sequence makes good use of the goal formulation process and can provide useful guidelines for courses of action if the objectives are well defined at this stage.

IDENTIFICATION OF THE RESEARCH PROBLEM

It has been demonstrated that planning is a necessary process to ensure the best use of land. Goal formulation that takes into account social as well as physical and economic factors, can improve the plans for that land by providing objectives on which to base decisions. This type of planning process is the basis for the research problem in this thesis; that is, the thesis is an attempt to present some of the data that are needed to develop planning goals for a popular recreation area.

The study area is Priest Lake, in the Idaho panhandle. The area was chosen for three reasons:

(i) Priest Lake and its surrounds have a high recreational capability. The clean water, large sandy beaches, coniferous forest and surrounding mountains all contribute to this capability.

(ii) Priest Lake has long been established as a recreation area but is still experiencing growth in demand. There is a need for increased space for the public users in the area; as early as 1966, for example, the peak weekend use of public campgrounds on the mainland was almost twice the developed capacity.[22]

---

[21] McLoughlin, op. cit., footnote 17, p. 108.

(iii) Some planning has already been carried out for the recreational use of the lakeshore. Both the National Forest Service and the State of Idaho have formulated some sort of plan for the development of those shorelines which are under their respective jurisdictions.

RESEARCH OBJECTIVE

The objective of the study is to provide three sets of data that could contribute to the formulation of goals for comprehensive planning in the Priest Lake area. These data include:

(i) present land use patterns and jurisdictional controls;

(ii) the physical capability of the area to sustain recreation; and

(iii) the attitudes and expectations of present users about the physical qualities of the lakeshore and of their particular sites.

These sets of data are major inputs to be considered in making planning decisions for the Priest Lake area as they all bear directly on its development potential and prospects. In combination, they set substantial constraints on the range of alternative use plans that can be developed, and the goals that can realistically be set. The thesis therefore concludes with some suggestions for goal formulation and possible courses of action. Also, the fact that some planning has already been done provides a rare opportunity to evaluate the plans in relation to the three sets of data. This focuses attention on a critical question: to what extent do the management plans reflect the realities of the physical and human environment of Priest Lake?

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[22] United States Department of Agriculture, Forest Service, Priest Lake Area Recreation Plan (Priest Lake Ranger District, Kaniksu National Forest, 1967), foreword.

ESTABLISHED PLANS FOR PRIEST LAKE

The plans, such as they are, that were established for the Priest Lake area are limited and conventional. The State of Idaho manages its land along the east shore of the lake for an endowment fund. This requires that the economic returns from the land be retained as invested capital, the interest from which is used for the operation of the public institutions of Idaho such as schools, prisons and charitable institutions. The State Parks Department realizes

> that there is a potential for receiving income far greater than the present through intensive management for income producing recreation of those areas best suited for this purpose. The intensity of this management must be weighed against the possible loss of revenue from timber production due to incompatibility of certain specific uses.[23]

There is approximately 12 miles of undeveloped shoreline which has potential for income producing recreation. The state proposes to take an inventory of the undeveloped shoreline and then to classify the land according to the recreation uses which would provide "the greatest public benefit while maintaining the endowment principle."[24] That is, a single set of use recommendations will be made after the inventory and classification has been carried out, and goal formulation will probably not go beyond the statement which has just been quoted. The conventional approach to planning, offering only one solution, is in practice here. This approach does not consider social values and concerns, only the economic returns of the situation.

---

[23] Comments from a Recreation Management Statement on Priest Lake for the Idaho State Department of Lands. Date and author unknown.

[24] Idaho State Department of Lands, Recreation Management Statement, op. cit., footnote 23.

The management statement includes only one objective that is specific enough to be used in making land use decisions. It was deemed imperative to identify the potential sites for campground development because of the overcrowded conditions of the one present campground on state-owned land. The objective was to lease the land for private campground development as this would allow for the needed expansion of campground facilities while still maintaining the endowment principle.

The majority of the west shore of Priest Lake is under the jurisdiction of the National Forest Service in the Kaniksu National Forest. National Forest land is managed on the basis of multiple use. This is essentially the integration of all uses related to renewable surface resources so as to interfere with each other as little as possible and to supplement each other as much as possible without impairment of the productivity of the land.[25]

There are five recognized purposes for which National Forests are managed -- recreation, timber, range, watershed, and wildlife and fisheries. These are referred to as renewable resources in Public Law 86-517 that deals with the purpose of the National Forests and the concept of multiple use. To maintain productivity, the use of these resources and related activities must be controlled to the extent necessary for the protection of soil.[26] In the opinion of the Forest Service, in the Priest Lake area there is a particular need for coordination between timber use and recreational use. There is urgent need to develop and use both resources.[27] A problem arises from having multiple users, not multiple use, and balancing the demands for these users. As pressures for land increase this job will become more difficult as each group attempts to establish itself as the highest priority group.

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[25] United States Department of Agriculture, Forest Service, Multiple Use Management Guide for Northern Region (1972), Introduction to Chapter 100.

[26] United States Department of Agriculture, Forest Service, *op. cit.*, footnote 25, p. 221.

[27] United States Department of Agriculture, Forest Service, *op. cit.*, footnote 25, Introduction to Chapter 100.

The normative judgment, that there is an "urgent need to develop and use both resources," (put forward by the Forest Service), implies that they have made a critical assumption: because there is a demonstrable demand, new facilities must be supplied. But it can also be argued that other demands must be given priority at Priest Lake -- for example, the preservation of the wilderness environment -- and that recreation demands, particularly intensive recreational uses, have to be channelled elsewhere. The Forest Service seems not to have considered the different demands that can be placed upon the land. Choices between these demands can be made only by knowing the goals which have to be satisfied. The conventional approach to planning taken by the Forest Service has not led to the establishment of goals.

Policy guidelines concerning development on the Kaniksu National Forest lands around Priest Lake have been established. The one that concerns recreation states that future recreation developments will be located along the lakeshore because of the concentration of public use. From Outlet north of West Twin Island, use will include the full range of recreation opportunities and facilities. From West Twin Island north to the mouth of the Thorofare, use will consist of forest recreation in a natural environment. Commercial public services, summer homes, and crowded complexes will not be permitted there.[28]

Another guideline concerns transportation on the west side of the lake. It states that future increased use of the area will necessitate reconstruction or relocation of portions of the lakeshore road as far north as Granite Creek, and in most cases this will involve moving the road back from the lake to allow more efficient development of the lakeshore. It also stated that the road north from Granite Creek to Beaver Creek would be essential for any significant increase in public access development.[29]

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[28] United States Department of Agriculture, Forest Service, op. cit., footnote 25, Management Unit 2, Water Influence Zone, p. 14.

The final policy guideline which pertains directly to lakeshore use deals with land occupancy. A demonstrated need for public access, or the elimination of non-conforming use, has made it necessary to place some residents on term permits to allow room for needed development.[30] This has happened on the island sites. Future demands for public access will require more area now occupied by summer residences, but there have been no plans made to revoke the term permits for any of these leased areas.

These guidelines indicate that the Priest Lake area policies have been developed to meet the loose national goals of the Forest Service. The main goal is to promote and achieve a pattern of natural resource uses that will best meet the needs of people now and in the future.[31] A problem arises because there is too large a gap between the loose goals and the specific local policies. Policies have not been developed to satisfy goals which are relevant and meaningful at the Priest Lake level.

Management plans for the area indicate that there will be an effort made to leave the north half of the western shoreline in a near natural state and that development will continue along the southern half of the shoreline. Access will be improved along the entire shoreline in the form of more roads. This could provide a management conflict because improved access brings more people and could cause problems for retaining a near natural environment north of West Twin Island. The need to provide more public beach access has been demonstrated but the plan for providing the space might not be possible unless summer homes, in areas where intensive use can be supported, are removed.

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[29] United States Department of Agriculture, Forest Service, op. cit., footnote 25, Management Unit 2, Water Influence Zone, p. 16.

[30] United States Department of Agriculture, Forest Service, op. cit., footnote 25, Management Unit 2, Water Influence Zone, p. 15.

[31] United States Department of Agriculture, Forest Service, Region One Multiple Use, Part One, Management Direction (Sandpoint, Kaniksu National Forest, 1972), pp. 12-27.

The guidelines of the National Forest Service and of the State of Idaho both illustrate that these two governing bodies have reached their planning policies via a single solution process. They have given no thought to alternative plans that could be implemented if the aspirations held by society were to change and thus make the single solution plans inappropriate or completely unsatisfactory. Planning via goal formulation provides for much better use of an area. To have effective alternatives, the social values held by the users must be known. This illustrates the importance of a user survey and clearly demonstrates the reason for undertaking such a survey at Priest Lake. The results from this survey can provide information on which to build goals for the planning area.

RESEARCH METHODS

Field Research

The sector of the Canada Land Inventory that deals with recreational capability was applied to the entire shoreline of Priest Lake, the Thorofare, and Upper Priest Lake during the summer of 1972. This land inventory was used in the study because it is designed to provide an objective estimate of the quantity, quality and location of potential recreational lands. The Canada Land Inventory does not consider accessibility or present land use which proves to be both an asset and a drawback; an asset because the lands being assigned capabilities are rated on an equal basis, a drawback when plans for the area are to be developed on the basis of existing access and, where ultimately the land's capability will not have much bearing on future development. As plans for the lakeshore have been based on accessibility and existing land use, results of the application of the Canada Land Inventory could provide a basis for amendments to the plans.

During the summer, camper interviews were carried out at the five campgrounds on the lake that charged user fees as well as at some of the campgrounds on the islands. The interviews were to provide information about the desires of the users for the purposes of planning guidelines.

Other Data

Questionnaires were mailed to a select sample of cottagers during the fall of 1972. The questionnaires dealt with topics similar to those of the camper questionnaires and were undertaken for the same reason of providing information about the desires of the users, to be used as guidelines when formulating plans.

Data concerning land use and jurisdiction were derived from maps belonging to the Forest Service, and land titles records in Sandpoint, Idaho. Information about planning policies and leasing policies, also about the Priest Lake area in general, came from both the Idaho State Parks and Recreation Department and the Idaho State Department of Lands at Coolin, as well as from the National Forest Service offices at Priest Lake and in Sandpoint.

PRESENTATION OF THE THESIS

Chapter 2 will deal with the description of Priest Lake, its site and situation, geology, climate, flora and fauna, history, and user characteristics. It should provide the necessary information to familiarize the reader with the area, as well as to indicate the reasons for its popularity for outdoor recreation.

The present land use and jurisdiction of the Priest Lake shorelands will be examined in Chapter 3. Ownership patterns will provide insights into whether or not present land use can be changed; that is, if the land is under public jurisdiction it is assumed that its use can more readily be changed to meet planning objectives than if it is in private ownership. Conversion of privately owned lots to public use would be unlikely due to the small size of the holdings. Leasing procedures also have an important role in decisions about future use. Broadly-defined use zones for the lake will be established to enable quick recognition of the parcels of land. In this way capability can be partially determined by present land use. Descriptions of these use zones, according to Clawson and Stewart's land classification, will follow this discussion.

In Chapter 4 the capability of the Priest Lake shorelands for recreational use will be determined. The method of application as well as the reason for the choice of the Canada Land Inventory with reference to the recreation sector will be presented. The inventory will be applied to the lakeshore and the results tabulated. Examples of some of the notable lakeshore units will be introduced. Finally an assessment of the capability of the lakeshore will be carried out.

Camper and cottager surveys will be the concern of Chapter 5. The basic methodologies used for these surveys will be discussed and an analysis of the data will be carried out. Differences and similarities within the groups as well as between the groups will be investigated.

The concluding chapter will attempt to integrate the findings of the previous chapters and relate them to the management plans for the area. Recommendations for recreational use of the area will then be proposed.

CHAPTER II

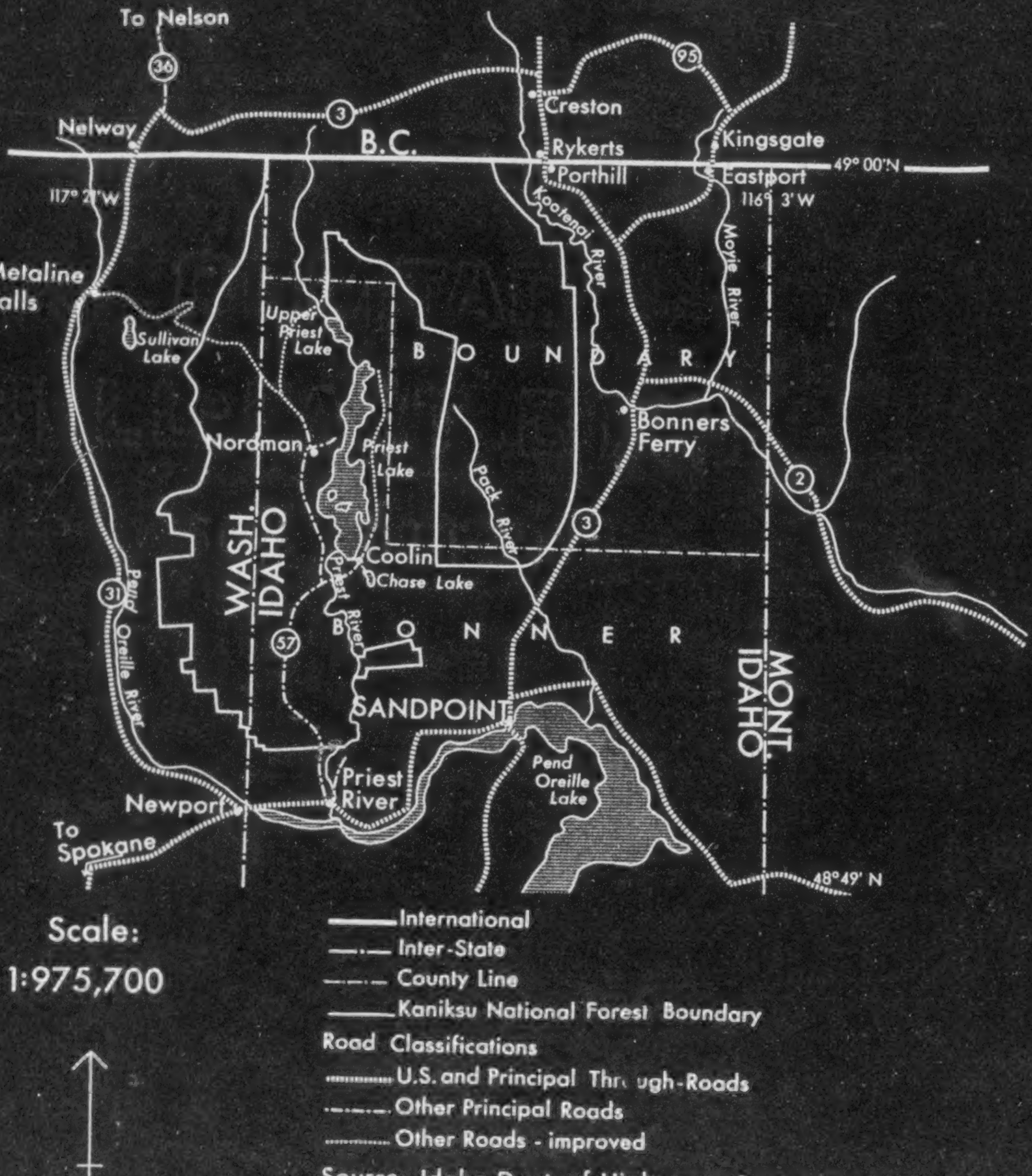
DESCRIPTION OF THE PRIEST LAKE AREA

SITE AND SITUATION

Priest Lake is located in the Idaho panhandle at latitude 48° 30.0' North and longitude 166° 52.0' West. It is situated in the structural trough between the Selkirk Mountains on the east and north-east and the Kaniksu Mountains on the west; this makes for difficult access, except from the south. The lake system is aligned north-south along the trough for a total length of 24 miles. This includes Priest Lake itself, the Upper Lake to the north-west and the Thorofare, the navigable channel which links them. Priest Lake is much the larger of the two lakes: its area is 37.5 square miles and its circumference is 50 miles, whereas the Upper Lake is only 1.8 square miles with a circumference of 7.2 miles. Both lakes are narrow, Priest Lake varying from 0.6 to 4.5 miles wide and Upper Lake from 0.3 to 0.8 miles. Priest Lake is noted for its timbered shoreline and islands, its sandy beaches and its clear, deep water; it reaches a maximum depth of 360 feet between Indian Creek and Cavanaugh Bay along the east shore. The Upper Lake is surrounded by forested mountains, but it also has several small sandy beaches.

Priest Lake is situated in the north-west corner of Bonner County, 50 road miles from Sandpoint, the county seat (Fig. 1). There are three permanent settlements around the lake. Coolin, at the south end has a resident population of one hundred; Nordman, on highway number 57 on the west side of the lake, has 50 residents; and Van's Corner, which includes the permanent residents from the area around Kalispell Bay, also has 50 people. The closest town with a population greater than 1,000 is Priest River which is about

Figure 1 PRIEST LAKE REGION


To Nelson
36
3
95
Nelway
B.C.
Creston
Rykerts
Porthill
Kingsgate
Eastport
49° 00'N
117° 21'W
116° 3'W
Metaline Falls
Sullivan Lake
Upper Priest Lake
BOUNDARY
Kootenai River
Moyie River
Bonners Ferry
Nordman
Priest Lake
Pack River
2
3
WASH.
IDAHO
Coolin
Chase Lake
31
Pend Oreille River
Priest River
57
BONNER
SANDPOINT
MONT.
IDAHO
Pend Oreille Lake
Priest River
Newport
To Spokane
48° 49' N
Scale:
1:975,700
International
Inter-State
County Line
Kaniksu National Forest Boundary
Road Classifications
U.S. and Principal Through-Roads
Other Principal Roads
Other Roads - improved

Source: Idaho Dept. of Highways, September 1971

20 miles south of the lake on state highway number 57.[1] The nearest large urban center is Spokane, Washington, located about 90 miles to the south-west on U.S. highway number 95. The Washington-Idaho line is about seven miles west of the lake (Figure 2 - 2B).

The Upper Lake is about 14 miles south of the United States-Canadian border but there are no roads connecting it directly with British Columbia. The route most often used by persons coming to Priest Lake from the Kootenay area in British Columbia is via the border crossing at Eastport and then through Bonners Ferry, Sandpoint and Priest River. Porthill, the border crossing seven miles south of Creston, British Columbia, also connects with U.S. 95 north of Bonners Ferry. A border crossing at Nelway connects the Nelson-Salmo area of British Columbia with Metaline Falls in the State of Washington by state highway number 31. A secondary road from Metaline Falls runs east to the Roosevelt Grove of Ancient Cedars and connects with an improved road which turns south to Nordman, Priest Lake and paved state highway number 57.

A new section of paved highway was completed in the summer of 1972 along the west shore of the lake from Granite Creek north to the Beaver Creek area. This road will provide access to an area formerly approached by a very rough logging road. Other than paved highways, the road quality ranges from good graveled roads to lumber roads and trails. Forest Service roads, usually trafficable in summer, are surfaced with dirt and gravel.[2] Several roads of this type extend into the area west of Priest Lake and onto the western flank of the Selkirks, to the east of the lake. The east shore road

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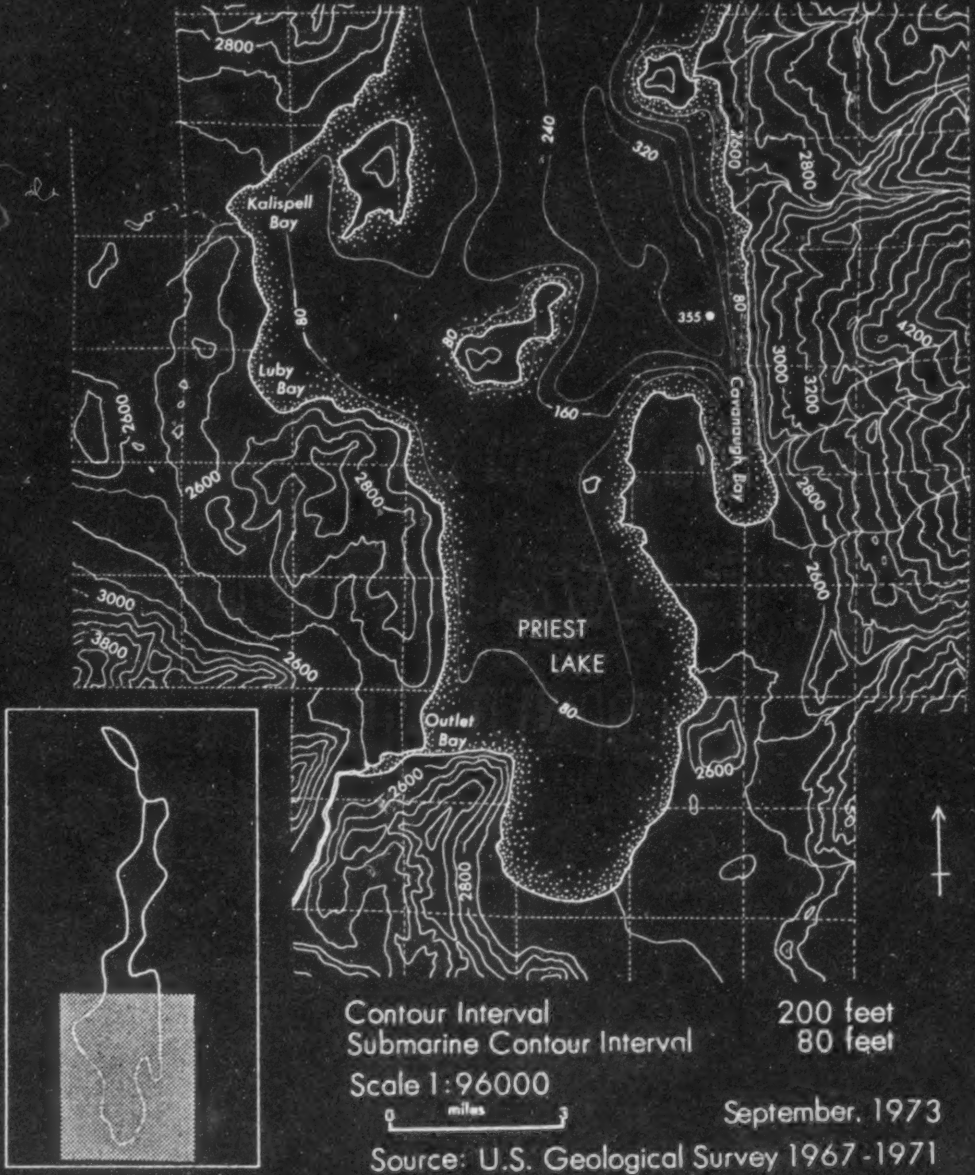
[1] Rand-McNally and Company, Commercial Atlas and Marketing Guide, 103 Edition, 1972 (New York, N.Y., 1972), p. 184.

[2] C. N. Savage, Geology and Mineral Resources of Bonner County, (County Report No. 6, Moscow, Idaho: Idaho Bureau of Mines and Geology, 1967), p. 11.

Figure 2 PRIEST LAKE, IDAHO TERRAIN


2800
240
320
2600
2800
Kalispell Bay
80
355
80
4200
Luby Bay
3000
3200
Cavanaugh Bay
160
2600
2600
2800
2800
2600
3000
3800
2600
PRIEST LAKE
80
Outlet Bay
2600
2600
2800
0 miles 3

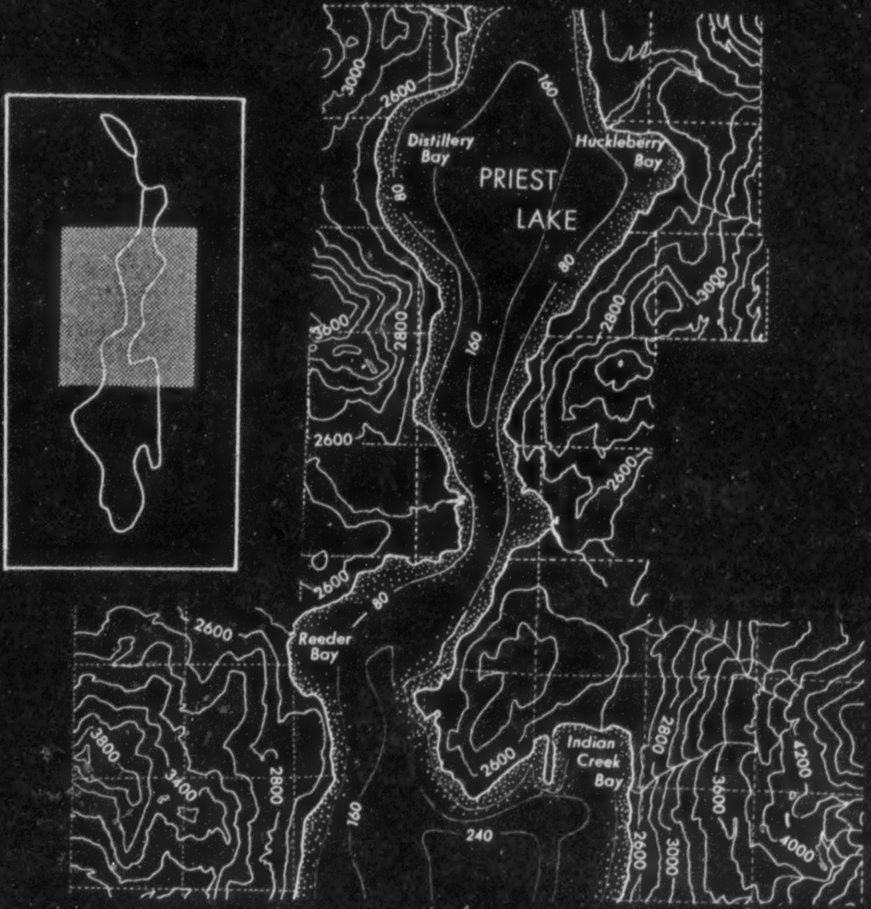
Contour Interval 200 feet
Submarine Contour Interval 80 feet

Scale 1:96000

September, 1973

Source: U.S. Geological Survey 1967-1971

Figure 2A PRIEST LAKE, IDAHO TERRAIN

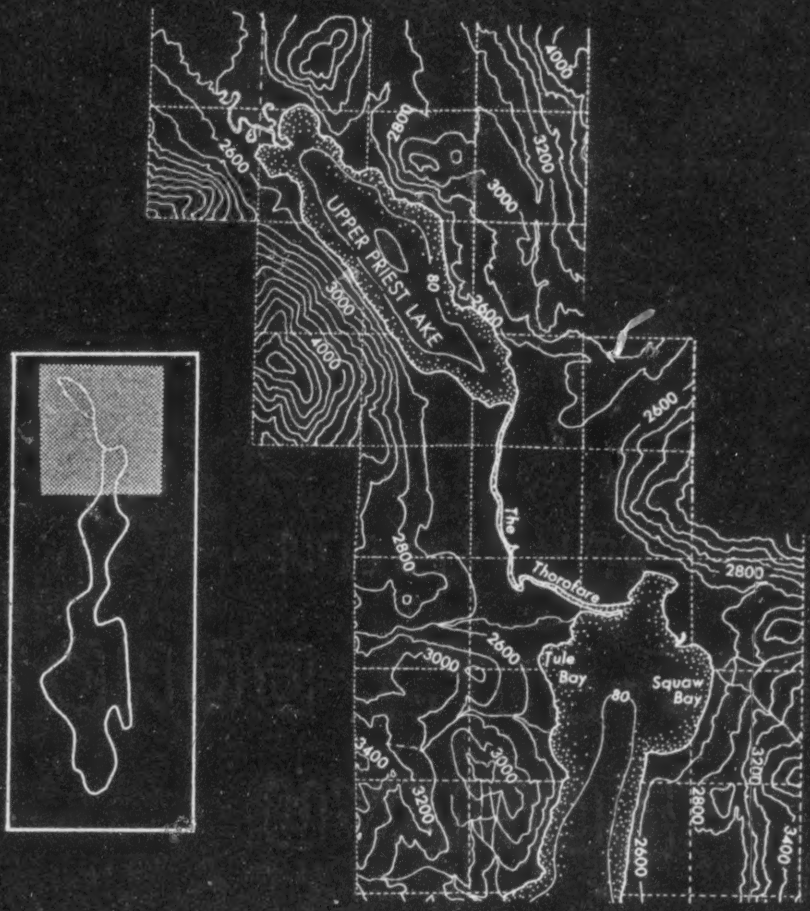

3000
2600
Distillery Bay
PRIEST LAKE
Huckleberry Bay
160
80
80
3000
2800
3600
2800
160
2600
2600
2600
80
Reeder Bay
2600
3800
3400
2800
160
240
2600
Indian Creek Bay
2800
3600
4200
4000
2600
3000

Contour Interval	200 feet
Submarine Contour Interval	80 feet

Source: U.S. Geological Survey 1967-1971

September, 1973

Figure 2B PRIEST LAKE, IDAHO TERRAIN


4000
2800
3200
2600
3000
UPPER PRIEST LAKE
80
2600
3000
4000
2600
The
Thorofare
2800
2800
3000
2600
Tule Bay
80
Squaw Bay
3400
3000
3200
3200
2800
2600
3400

Contour Interval 200 feet
Submarine Contour Interval 80 feet

Source: U.S. Geological Survey 1967-1971 September, 1973 is a gravelled road which is extremely dusty during the dry summer months but it provides the only major access to that side of the lake. Upper Priest Lake and the Thorofare are inaccessible except by boat or hiking trail, although the new highway to Beaver Creek provides access for many more people.

There are two landing strips for small planes in the Priest Lake area, but wind socks are the only facilities provided. One strip is located across the highway from the Priest Lake Ranger Station, near Nordman, and the other is located north-east of Coolin near Cavanaugh Bay. Both of these air strips are well used by recreational traffic during the summer, especially on the weekends.

GEOLOGY OF THE AREA

Priest Lake is part of the physiographic area known as the Northern Rocky Mountain province. Part of this province is composed of the Selkirk Range, and the western flanks of these granitic mountains border the eastern shores of the Upper and Priest Lakes. West of Priest Lake is an area called the Priest Lake Uplands, which is composed of both granite and metamorphic rocks of relatively greater resistance to erosion than the surrounding materials. These resistant rocks have been eroded into hills and low mountains but the resultant forms lack the more massive ruggedness of the Selkirks (Figure 3 - 3B).

The majority of the Priest Lake area is underlain by the Kaniksu Batholithic Complex which dates from the Cretaceous to Tertiary eras; the batholith is granitic. Batholiths are large masses of intrusive rock which reach the surface of the earth when erosion has stripped away the older overlying rocks. They have an economic importance as the immediate or indirect source of ore-bearing minerals in known mineralized areas. There is not much information available about the mineral prospects in the Priest Lake district. Some mining activity took place during the early 1900's.

Woodrat Mine, a lead-silver prospect on the west side of Priest Lake at Luby Bay, was opened up in 1905 (Fig. 3). In 1967 the National Forest Service was examining mining claims on the west side of the lake. Three separate claims that occupied 1.5 miles of water frontage were to be examined and those failing to show valid discovery were to be contested.[3]

Glacial ice and meltwater during the late Wisconsin ice age (Pinedale period) laid clay, silts, sand and gravels along the Priest Lake valley as far north as Granite Creek. The Upper Lake and the area south to Granite Creek were covered by late Alpine glaciers. These Quaternary deposits outcrop along the east shoreline from Mosquito Bay south to Bear Creek, and from the area west of Pinto Point to Indian Creek Bay. These deposits also occur along both sides of the Thorofare and along Priest River at the outlet of Priest Lake.

Evidence of faulting is present along the east shore of Priest Lake and along the south-west shore of Upper Priest Lake. The disruption of drainage by the deposition of Pleistocene glacial deposits and through faulting causes the Priest River to be a sluggish, meandering stream but it is still a principal northern tributary of the Pend Oreille River. The Pend Oreille and Clark Fork rivers are the principal drainage for Bonner County. They drain westward into the Columbia River basin, which is Idaho's main drainage.

The soils in the area are relatively youthful and immaturely developed because they are derived principally from glacial drift and relatively recent fluviatile deposits. Granitic and silica-rich metamorphic rocks were the original sources of the unconsolidated parent rock debris.[4] The soils are light-colored podzols which are usually associated with well-drained, conifer-covered uplands. They are best utilized for timber or for pasture.[5]

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[3] United States Department of Agriculture, Forest Service, Priest Lake Recreation Area Plan (Priest Lake Ranger District, Kaniksu National Forest, June 1967), p. 3.

[4] Savage, op. cit., footnote 2, p. 9.

CLIMATE

The Priest Lake area experiences a modified continental climate with well-defined seasons. The climate is a major factor in the area's economy because tree growth and forest productivity are dependent upon all climatic factors. This area is about 300 miles inland from the Pacific Ocean and is located in the belt of the prevailing westerly winds. These bring moist Pacific air and, with the mountain barriers to the north and east blocking out much of the Arctic air, account for the mild winters. Priest Lake also has a moderating effect on its immediate surrounding areas.

During the summer, the average daily highs range from 75° to 95° Fahrenheit and the average daily lows range from 45° to 60° Fahrenheit. This makes the diurnal range greater than 30° so the nights are comfortably cool.[6] There are 88 frost-free days at Priest Lake annually. June 8 is the average date for the last occurrence of temperatures below 32° Fahrenheit and September 4 is the first date for occurrence of temperatures below freezing.

The average annual precipitation for the area is 32.8 inches and much of this falls as snow (mean snowfall is 89.3 inches) as the area receives its heaviest precipitation from November to April. July, August and September are the driest months, although heavy precipitation may accompany convectional thundershowers during this time.

Priest Lake has sunny skies and a low relative humidity during the summer. The humidity is 25 per cent to

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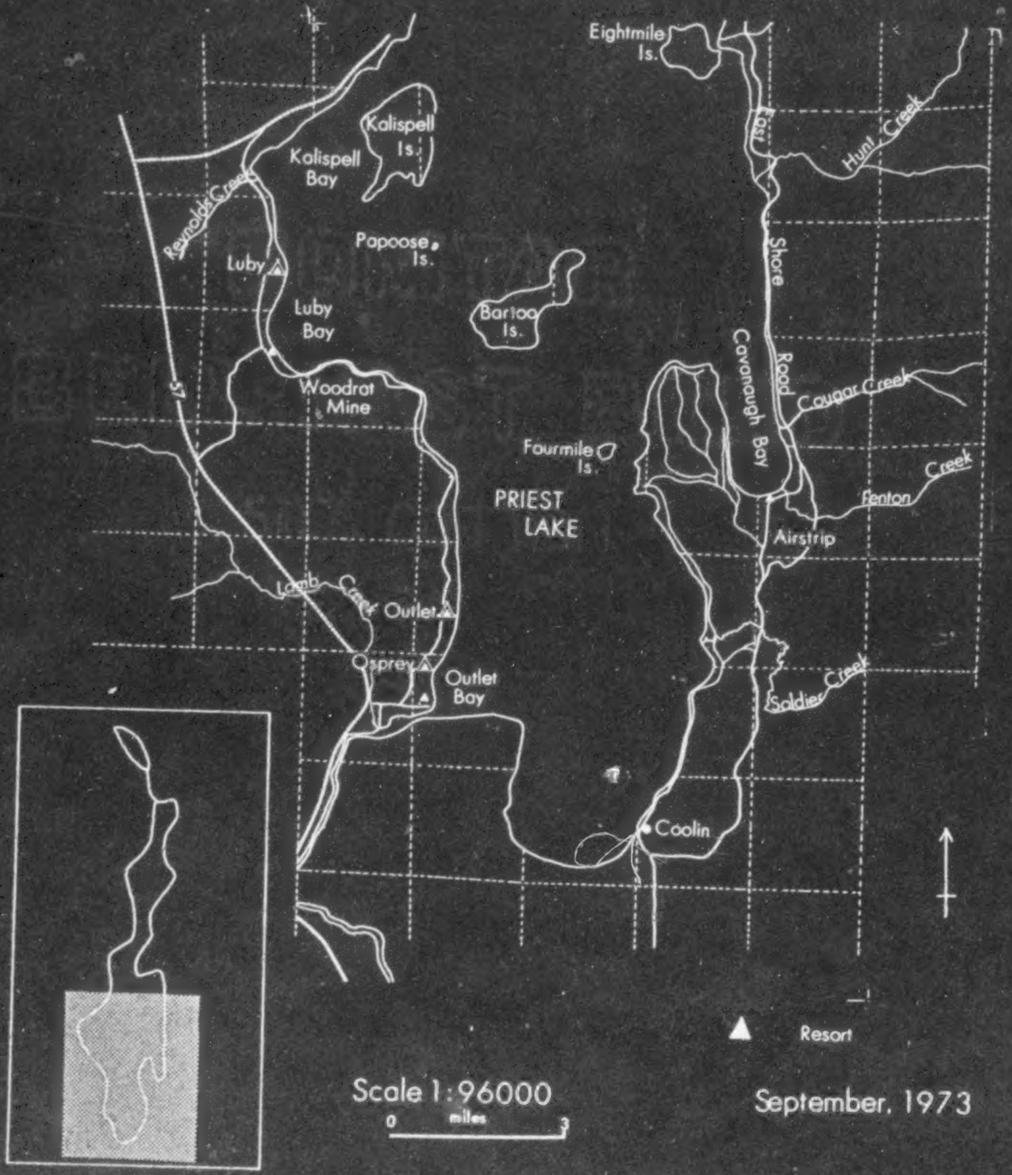
[5] H. H. Caldwell, editor, Idaho Economic Atlas, (Moscow, Idaho: Idaho Bureau of Mines and Geology, 1970), p. 28.

[6] Caldwell, *op. cit.*, footnote 5, p. 20.

Figure 3 PRIEST LAKE


Eightmile Is.
Kalispell Is.
Kalispell Bay
Reynolds Creek
Papoose Is.
Luby
Luby Bay
Bartoo Is.
Woodrat Mine
57
Fourmile Is.
PRIEST LAKE
Lamb Creek
Outlet
Osprey
Outlet Bay
Coolin
East Shore Road
Hunt Creek
Cavanaugh Bay
Cougar Creek
Fenton Creek
Airstrip
Soldier Creek
Resort
0
miles
3

Scale 1:96000

September, 1973

30 per cent at mid-day with 70 to 80 per cent of possible sunshine experienced. During the winter the relative humidity ranges from 70 to 75 per cent at mid-day and the sky has a cloud cover of 70 to 80 per cent.[7]

The water temperatures of Priest Lake are an occasional source of complaint. The lake is quite cool until early July but it becomes comfortable for bathing by the end of the month. The water temperatures range from about 72° Fahrenheit to 78° Fahrenheit (along shore areas) until late August or early September. The depth of the water body, its size, and the fact that runoff for the Upper Priest River and the lakes comes from mountain streams fed by snow melt, are major contributing factors to cooler water temperature (Fig. 3).

The lake has been completely frozen during the last two winters (1971-1972 and 1972-1973), but this is not a regular occurrence. In the previous five winters there had been only partial freezing.[8]

FLORA AND FAUNA

The United States Soil Conservation Service has evolved a classification system that identifies land according to its use capability as productive farm lands. Bonner County land around Priest Lake has a low use rating and has been designated for use as forestry or grazing land. The land north of the lake and east into the Selkirks has severe limitations of steepness, roughness, and climate, and is recommended for use mainly as woodland and wildlife cover.[9]

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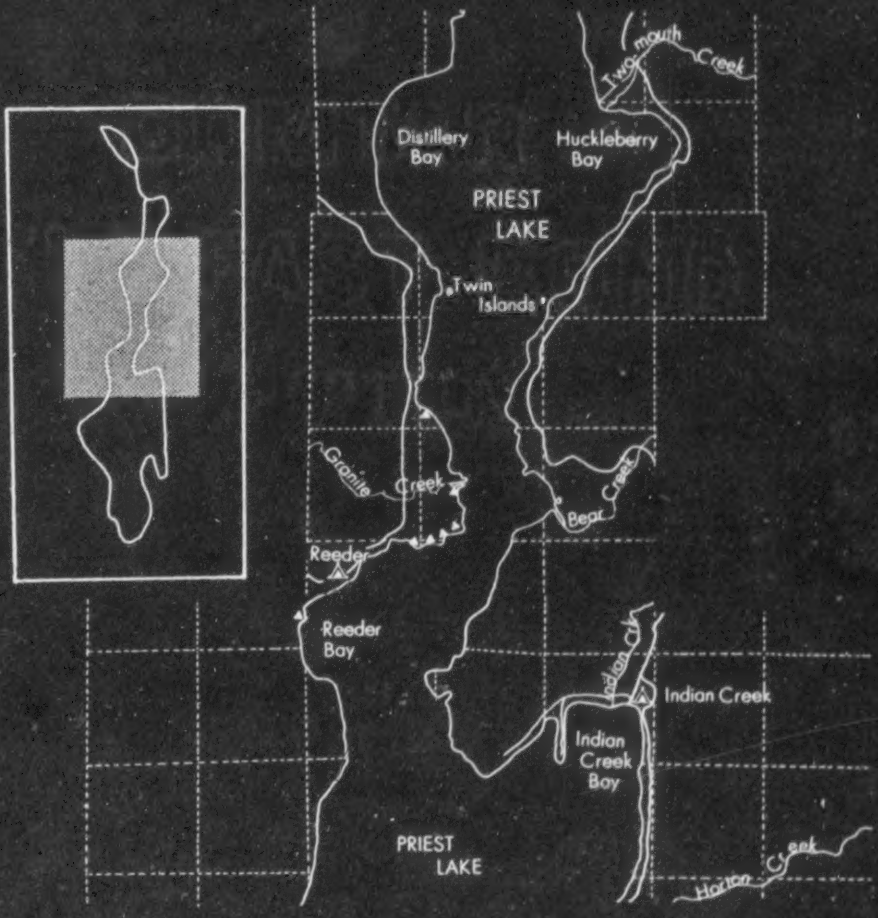
[7] Rand-McNally, op. cit., footnote 1, p. 187.

[8] Personal communication with J. Joyce, Kalispell Bay resident, January 1973.

[9] Caldwell, op. cit., footnote 5, pp. 32-33.

Figure 3A PRIEST LAKE


Twomouth Creek
Distillery Bay
Huckleberry Bay
PRIEST LAKE
Twin Islands
Granite Creek
Bear Creek
Reeder
Reeder Bay
Indian Ck
Indian Creek
Indian Creek Bay
PRIEST LAKE
Horton Creek

September, 1973

The forest of the Priest Lake area is predominantly coniferous though little remains of the original dense cover: ". . . much of this land has been logged and a second growth of inferior trees is becoming established on the cut over land."[10] Native tree species of commercial importance are the Douglas fir, lodge-pole pine, ponderosa pine, western white pine, western larch, and various spruce and fir. Hemlock and red cedar also grow in the area around the lake. Red cedar are the oldest trees in the area's forest, some of them being close to 600 years old.

Variable temperature, precipitation and soil conditions control the growth of vegetation in the region. Two biotic forest zones surround the lake. The most prominent is the Subalpine forest located along the shoreland and east of the lake; the other is the Columbia forest located along the Priest River just south of the lake outlet for a distance of about 12 miles.[11] The typical flora of the Subalpine forest is Engelmann spruce, alpine fir, white-barked pine, lodgepole pine, aspen and huckleberries. Huckleberrying is a popular summer activity in the Priest Lake area and patches of the berries may be found almost anywhere, along the highways, near the campgrounds, and in mountain meadows. The typical flora of the Columbia forest is paper birch, red cedar, hemlock and white pine. These two biotic zones differ in length of growing season and mean maximum and minimum temperatures. The Subalpine forest is a cooler habitat with a shorter growing season. It is the flora of this forest that generally surrounds the lake.

Smaller trees and shrubs in the area are mountain ash, dogwood, yew, hawthorn and juniper. There are many plants in the area and the guide to the nature trail at the

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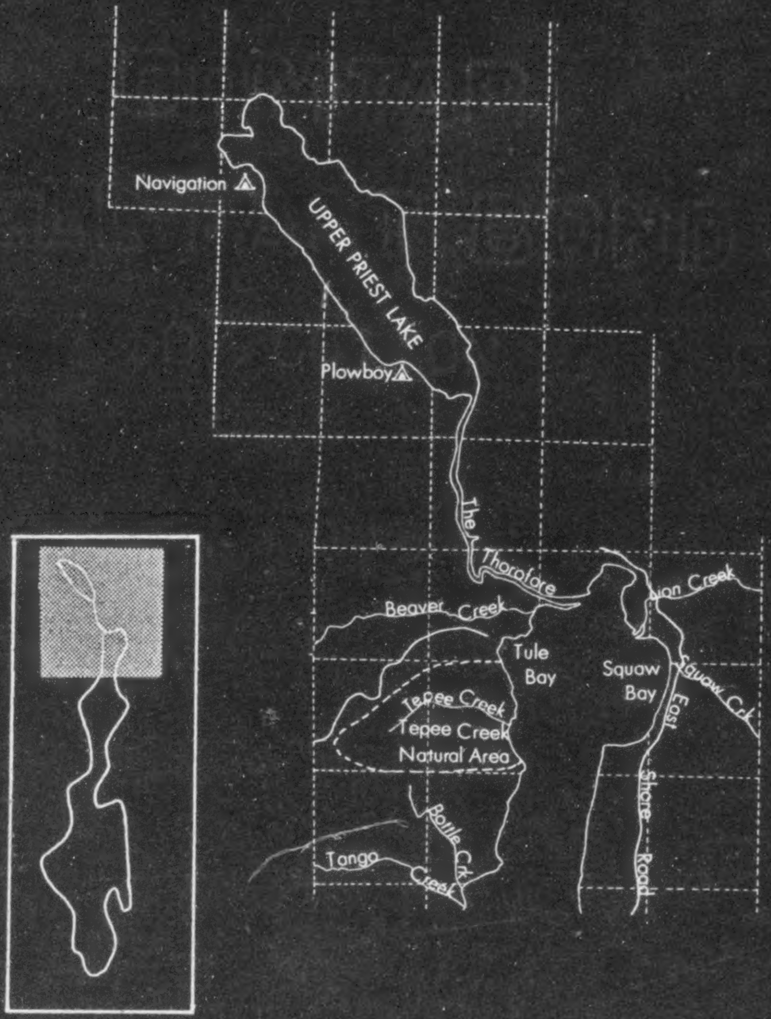
[10] Savage, op. cit., footnote 2, p. 10.

[11] Savage, op. cit., footnote 2, p. 10.

Figure 3B PRIEST LAKE


Navigation
UPPER PRIEST LAKE
Plowboy
The Thorofare
Beaver Creek
Lion Creek
Tule Bay
Squaw Bay
Squaw Crk
East Shore Road
Tepee Creek
Tepee Creek Natural Area
Bottle Crk
Tango Creek

September, 1973

Hanna Flats Scenic Area, located about one-half mile from the Ranger Station, identifies most of them. To mention just a few, there are trillium, fireweed, Indian paintbrush, lady slipper or wild orchid, lupines, thimbleberry and bunchberry.

Fauna of the lake area includes mule deer, white-tailed deer, American black bear, moose, elk, pine squirrel and gold-mantled ground squirrel. The fur-bearing animals of the area include beaver, muskrat, mink, marten, weasel, skunk and coyote. The most common upland bird is the Franklin grouse. Migratory water birds in the area are Canada geese, mallard ducks and swans. Other water birds are osprey, heron, gulls and loons. The western bluejay, grey jay, pileated woodpecker, raven and the water ouzel are also common.

Fishing is a popular pastime at the lake and in 1964 a 54 pound Mackinaw trout was caught. Rainbow, cutthroat, and Dolly Varden are plentiful but 90 per cent of the harvest is accounted for by Kokanee or land-locked sockeye salmon.

HISTORY

One of the first white men to come to the Priest Lake area was a Jesuit priest, Father Pierre Jean de Smet, who was in the area during the period 1844 to 1846. He named many of the lakes, streams, and mountains in the area but few of the original names remain in use today. Priest Lake was named to honor him. The Indians called de Smet "Kaniksu" which is an Indian term meaning "black robe," because of his clerical dress. This became the name of the National Forest.

The early towns of the county were created by lumbering and mining activities, and use was made of the waterways around these areas for the transportation of goods. Logging boats were used on Priest Lake to move logs from the north end to the southern outlet and into Priest River as early as 1900. There is an old logging boat, the Tyee, which is partially submerged in the lake just south-east of Mosquito Bay. The Tyee was still being used to haul logs in the 1950's.

The economic base of the area still depends greatly on logging. Bonner County has between one million and 1.5 million acres of commercial forest land, from which between 100 and 200 million board feet of lumber are produced annually.[12] The land that is logged in the National Forest is managed on a sustained-yield program which will permit annual harvest to continue indefinitely. Other income for the Priest Lake area is provided through recreation and tourism, especially during the summer months.

AREA USERS

Priest Lake is a destination area. Eighty per cent of the visitors stay overnight or longer. The average length of visit for campers is three and one-half days. Two-thirds of the visitors live within 150 miles of the lake with the greatest number of visitors coming from the Spokane area. In 1967 peak weekend use of boat access sites was nearly three times the developed capacity. Peak weekend use of road and boat access sites combined was almost twice the developed capacity.[13] Visitation to the area has increased yearly since 1967, so the problem of overuse is greater than ever. Visitors are now coming to the area from much further than a radius of 150 miles because of the lake's unspoiled beauty and relative lack of crowding as compared with parks in Oregon and California.

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[12] Caldwell, op. cit., footnote 5, p. 40. One hundred and fifty million boardfeet will build 17,000 three-bedroom homes.

[13] United States Department of Agriculture, Forest Service, op. cit., footnote 4, Foreword.

There are more than 800 summer homes on the lake and five developed campgrounds that provide more than 250 family use sites. There are also eleven commercial resorts which provide lodging. Campsites which are accessible only by boat are provided on the islands, and there are undeveloped campsites at the north end of Priest Lake and around the Upper Lake. There are also day use areas for picnicking throughout the shore zones on both lakes.

Boat traffic on Priest Lake is quite heavy and during summer weekends the Upper Lake and the Thorofare also experience heavy use.

Winter use of the area is also increasing because of the popularity of snowmobiles. The campgrounds around the lake are closed during the winter months although the manager of Indian Creek State Park is working on a plan for winter camping. On the west side of the lake, four resorts are open during the winter season. Their clientele usually come to snowmobile. A winter carnival boasts dog-sled and snowmobile races, and draws winter users into the area. Schweitzer Basin, just north of Sandpoint, is the nearest ski resort.

SUMMARY

Use of Priest Lake is increasing and it is not difficult to understand why. An unspoiled lake with clean, clear water and good fishing, surrounded by evergreens covering the rolling hills and the Selkirks serving as a backdrop; warm weather and sunshine; sandy beaches and public campsites present an ideal type of vacation ground. At the present time the major limiting factor for visitation to the lake is access. A lack of facilities is another factor but not really a deterrent. People who do know of the area and want to visit it, come anyway and over-crowding results. Over-use of certain areas is increasing and has been severe enough to force closure of Papoose and West Twin islands for the summer of 1973. These two islands are under National Forest jurisdiction. Also, East Twin Island, owned by Burlington Northern Railway, will probably be closed.

CHAPTER III

PRESENT LAND USE AND JURISDICTION OF THE PRIEST LAKE SHORELANDS

To determine the potential capability of an area for recreational use, the present use of the land and the jurisdiction over this land must be taken into consideration, along with an assessment of its physical characteristics. Land use and jurisdictional data are important because present land use, and the controls on present land use, set constraints on prospective development. Physical characteristics, on the other hand, influence the capability of the land to support recreational activities.

Land use, according to Clawson and Stewart, can be defined as "man's activities on land which are directly related to the land."[1] To make land use studies as useful as possible, they must employ techniques of tabulation which are common to other studies.

Clawson and Stewart feel that there are nine major categories under which land use can be classified. These are (i) location, (ii) activity on the land, (iii) natural qualities, (iv) improvements on or to the land, and the relationship between the improvement and the activity, (v) intensity of land use, (vi) land tenure and the relationship between the owner and the user, (vii) land prices and market activity, (viii) interrelations in use between different tracts of land and, finally, (ix) the interrelations between activities on the land and other social and economic activities.

To apply this approach to Priest Lake, the lakeshore has been divided into major use zones. Though broadly defined, the zones provide a method for quickly recognizing the use of parcels of land. In this way capability can be partially determined by present land use. Intensity of land use is difficult to measure for most of the lakeshore because the actual numbers of people using undeveloped sites are unavailable, although a cottage density could probably be calculated. Figures concerning intensity are valid only for the developed campgrounds, and do not include the water access sites. Those sites which are accessible only by water are termed "water access" and they refer both to sites on the mainland at the north end of the lake as well as on the islands.

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[1] Marion Clawson and C.L. Stewart, Land Use Information, (Resources for the Future, Baltimore: Johns Hopkins Press, 1965), p. 29.

Because 77 per cent of the shoreline is owned by either the federal or Idaho governments there is little market activity. This characteristic of land use has not been investigated.

Interrelations in use between different tracts of land, and between activities on this land and other social and economic activities, have been confined almost entirely to lakeshore tracts. Exceptions are the areas around Granite Creek and Reeder Bay, on the west side of the lake, which have some interaction with the village of Nordman. Apart from these few problems with gathering the necessary information, the land use data have been recorded in accordance with Clawson's inclusive outline.

OWNERSHIP PATTERNS AND LEASING PROCEDURES

It is useful to consider the basic ownership patterns on Priest Lake, as rights to lake-frontage are factors controlling the amount of water-based activity that can be planned. The two lakes, the islands and the Thorofare have a total of 80 miles of shoreline. The National Forest Service owns and manages 34.5 miles of this total and the State of Idaho owns 27.5 miles. The remaining 18 miles are privately owned, the most substantial block (4.5 miles) belonging to Diamond International Corporation (Figs. 4C-4D).

Diamond International once owned 7 miles of the shoreline along the east side of the lake but sold 2.5 miles of this for waterfront lots. "Diamond reportedly intends to hold the balance of their frontage in anticipation that the value will continue to escalate."[2]

The majority of private land in cottage use on the lake was developed after World War Two.[3] Most of these private lots came from homesteads or from land owned by the rail companies. Some of the areas of very fragmented private ownership were once homesteads. Established from these homesteads are the private cottage lots at Coolin, Kalispell Bay, Granite Creek, Outlet and Bear Creek. Burlington Northern, Great Northern and the Northern Pacific Railways were given alternate sections of land along the rail lines that they laid in Idaho. Some of these sections were occupied at that time and the rail companies were allowed to choose other lands to reach their quotas; in this manner they came to own the land around Priest Lake. The timber companies now in the area bought this land from the rail companies. This is the reason for Diamond International Company owning sections of land along the east shore of the lake. A tract of private land on the west side of the lake near the Thorofare is owned by the Beaver Creek Camp Association. This land was presented to the founder of the Association by the timber companies in the area. This fragmented pattern of private ownership causes problems in planning for sections of the lakeshore because the land use in these areas does not always coincide with the use under the jurisdiction of either the state or federal governments.

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[2] United States Department of Agriculture, Forest Service, Priest Lake Recreation Area Plan (Priest Lake Ranger District, Kaniksu National Forest, June 1967), p. 29.

[3] Personal Communication from C. O. Troxel, Resource Assistant, Priest Lake Ranger Station in August of 1973.

Both the Forest Service and the State of Idaho lease land with water frontage for recreational use such as summer cottages, tourist resorts, and marinas. There are 135 summer cottage lots now under lease from the Forest Service and 355 of these lots under lease from the State of Idaho. The latter group occupies approximately 80 per cent of the total state-managed shoreline.

Leasing procedures and costs, as well as other controls, such as building codes, and restrictions on the removal of vegetation or other natural features from the lots, vary considerably between the two levels of government. The National Forest Service has issued leases on an annual basis which are renewed by the payment of yearly fees. Term permits accompany the leases. As of December 31, 1972, except for island permits and permits for some of the water access sites, the term permits were renewed for a period of 20 years.[4] The general practice is to give the permit holders ten years notice if the permit is to be terminated. This means that 1982 would be the year of notification for holders of the new term permits. In addition, the lessees can be required to leave their lots within 30 days of receiving written notice, if the Forest Service determines that termination is required in the public interest. This would be an exceptional procedure, but it has already been established that term permits for island lots and for some of the boat access sites will not be renewed when they expire. A few of the boat access lots are terminable now while most of the island sites become terminable in 1986. After termination, the improvements on the lots will be removed by the owners and the areas will be turned over to public use. The day use area in Ledgewood Bay is situated on the former site of four cottages. The term permits for these cottages expired in 1968 and the lots were cleared for a public picnic ground.

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[4] Troxel, op. cit., footnote 3, January of 1973.

The Forest Service uses a rating scale to determine lease costs at Priest Lake. The lots are rated as "excellent," "good," "poor" or "boat access." An "excellent" lot would have a sandy beach with a dry beach evident, gentle backshore and offshore slope, good ground cover and upper storey, and favorable micro-climatic conditions as influenced by aspect. The ratings drop as one or more of the conditions are not met. A "poor" lot could have no beach, a steep backshore slope, continual on-shore breezes and exposure to the sun only in the early morning. The annual charges for the past five years have been as follows: $270 for an "excellent" lot, $210 for a "good" lot, $150 for a "poor" lot and $210 for a "boat access" lot. The "boat access" sites are all rated as "excellent" but, because they can be reached only by boat or seaplane, the lessees have been given a discount. On January 1, 1973, new leasing prices were introduced. In all cases, the increase has been greater than 100 per cent. Those lots with "excellent" ratings are now being assessed $600 annually. This is an increase of 122 per cent over last year. Lessees with lots that rate as "good" will be paying $540, a 157 per cent increase over last year. The "poor" sites and the "boat access" sites are both being charged $470 annually, or increases of 213 per cent and 124 per cent respectively.

The lands on the east shore of the lake that are owned by the State of Idaho are "grant lands." These lands, sections 16 and 36 in each township, were originally granted to nine separate institutions by the Federal Government when Idaho became a state in 1890.

> Most of the lands are or were "school sections...." The lands were granted to the state for the purpose of supporting public schools.
>
> The Idaho Constitution charges the Board of Land Commissioners with the responsibility of administering these lands. The object is to manage them in a fashion that will maximize the return to

> the endowments but in a manner that is consistent with good resource management.[5]

Income from rental and leasing agreements, as well as interest on land sale and timber sale contracts, provides a direct source of revenue to the various institutions benefitting from the endowment lands.[6] It is a privilege, not a right, for the public to use these grant lands.

Leases for state endowment lands can not exceed ten years, but they are renewable. The state has no system of rating waterfront lots and all lessees pay a standard fee of $125 yearly. If the lot is not on lake frontage, the rate is $96 annually. There are still some lots available on the state lands. People wishing to purchase a lease on a parcel of land already under lease to another lessee may apply for the expiring lease prior to November 30th of the year it expires. The lessee has no preferential right. If two or more parties apply for the lease, an auction must be held and the land is leased to the highest bidder. If the former lessee is not successful, the high bidder must pay him the appraised value of any recorded improvements he has placed upon the lot.

There is a large difference between the lease rates of the Forest Service and the State of Idaho. An excellent site on the west side of the lake costs 380 per cent more per annum than a similar site on the east side of the lake. A poor site on the west side costs 276 per cent more.

Permits from the Forest Service are non-transferable but state lessees may sublet or assign the lease once the written consent of the lessor has been obtained. The State of Idaho lease and the National Forest permit are quite similar in the basic requirements that relate to landscaping and removal of vegetation, maintenance of premises, sewage, garbage and litter, and construction and improvements. Both governments require that written consent be given before improvements are allowed to the land or to be put on the land, but the Forest Service outlines certain areas where changes will not be allowed even if applied for. One such clause states that no construction of improvements will be made along the beach except as needed for access and maintenance of a dock structure. This includes, but is not limited to, removal of brush and trees, construction of retaining walls and patio type development.

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[5] G. C. Trombley, Commissioner, Endowment Lands of Idaho (Boise: Idaho Department of Public Lands, 1971), p. 4.

[6] Trombley records only one exception to this management policy. (Endowment Lands of Idaho, op. cit., footnote 3, p. 10). This is Indian Creek State Park about midway along the east shore of Priest Lake (Fig.

The Forest Service also states that the lessee must leave the beach open to the public and place no obstruction across any trail which crosses the area. Stricter building codes are also in effect under Forest Service management; cottages and boathouses must be inconspicuous and painted green or brown.

It is evident that the lessee under the jurisdiction of the State of Idaho enjoys a much more lenient lease policy at a greatly reduced annual fee. One result of the differences in lease regulations is evidenced by a visual comparison between the east and west shores. From the middle of the lake it is difficult to pick out the cottage sites on the west shore, because the buildings are well camouflaged. On the east shore, however, brighter colors, aluminum boat houses, and various breakwaters are prominent and visible features. Many of the cottages on the east shore are built on privately owned land and could therefore be more visually prominent, but even in areas of totally state leased lots the cottages and boat houses are not as well camouflaged as on the west shore.

DESCRIPTION OF USE ZONES

The use zones have been numbered from the south end of the lake because public access to the shoreline is easiest here. Coolin was decided upon as a starting point as access to the townsite is excellent. The west side of the lake, mainly under the jurisdiction of the Forest Service, is treated first because state highway 57 provides much better access to the lakeshore than does the unpaved east shore road.

Four general use zones have been described for the lakeshore. These are (i) the undeveloped recreational use zones, (ii) the non-recreational use zones, (iii) cottage use zones, and (iv) the resort, cottage and campground use zones (Figs. 4-4D). The undeveloped recreational zones are for the most part uninhabited. They have potential for recreational development because the physical qualities of these areas, such as gentle backshore and offshore gradients and sand or gravel beaches, can support use. The non-recreational use zones are also uninhabited but these areas do not have potential for recreational development because of unstable banks, steep offshore gradients, or because of a lack of space for development. Cottage use zones are areas along the shoreline that are used exclusively for private cottages. The resort, cottage and campground use zones are areas of intensive use. In some areas all three types of use will be encountered while in others only resorts and cottages or cottages and campgrounds will be encountered. These variations have been designated as separate zones but are part of the fourth general zone.

Use Zone 1 (Non-recreational)

This zone is for the most part uninhabited. A swampy area at the southern end is the location of the only cottages. Here the backshore is very flat and treeless. The gradient at the north end of the zone is very steep and

LEGEND FOR FIGURES 4-4D

LAND USE ZONES AND JURISDICTION

SCALE 1:48000

SEPTEMBER 1973

LEGEND

USE ZONES:

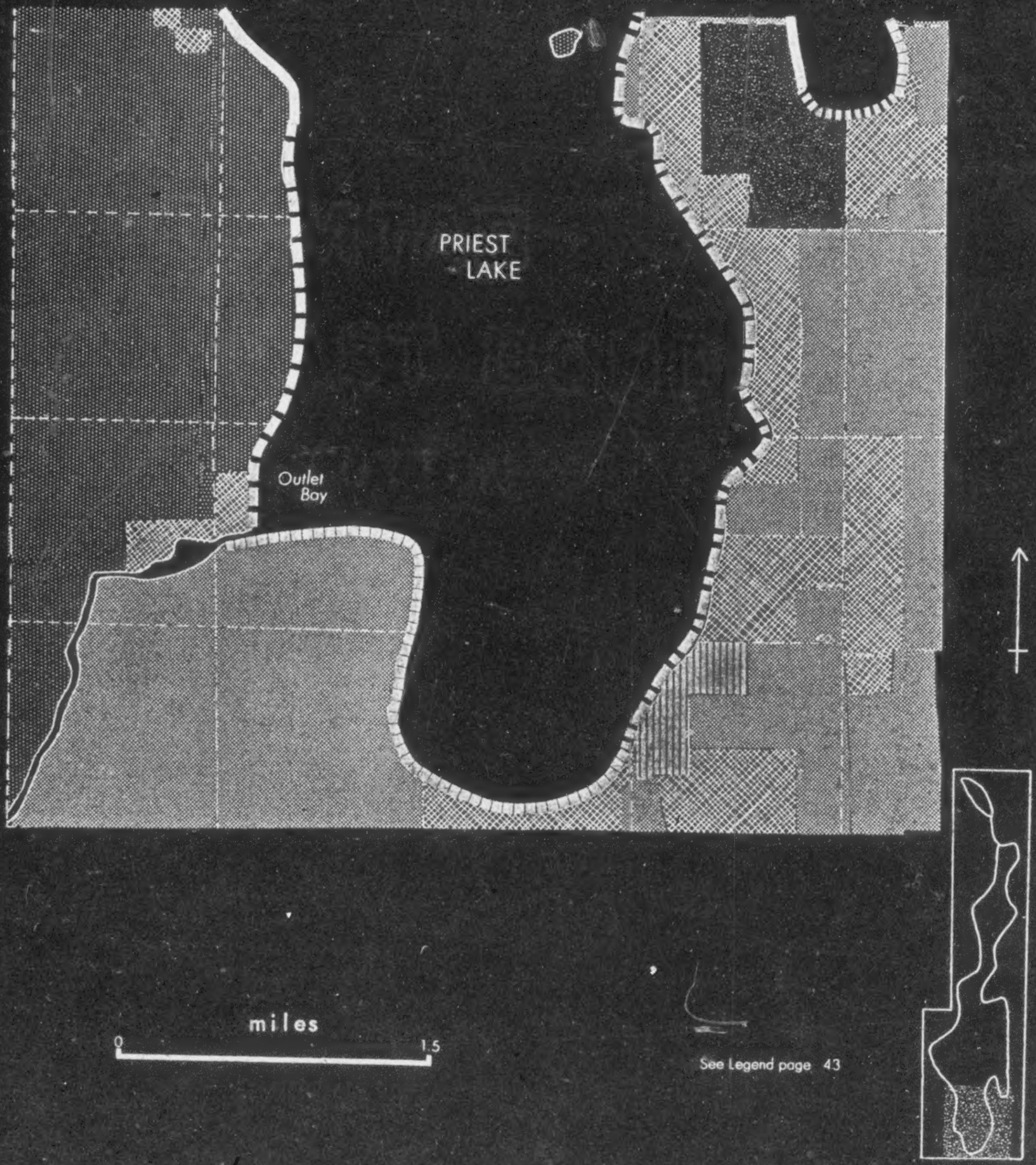
Non-recreational	▬▬▬
Recreational, undeveloped	▬▬▬
Resort, cottage, campground	▬ ▬ ▬
Cottage, campground	▬▬ ▬
Cottage, resort	▮▮▮▮▮
Cottage	▮ ▬ ▮ ▬

JURISDICTION:

National Forest Service	▨
State of Idaho	▨
Diamond International	▨
Privately owned	▦
Beaver Creek Camp Association	▥
Coolin	▥

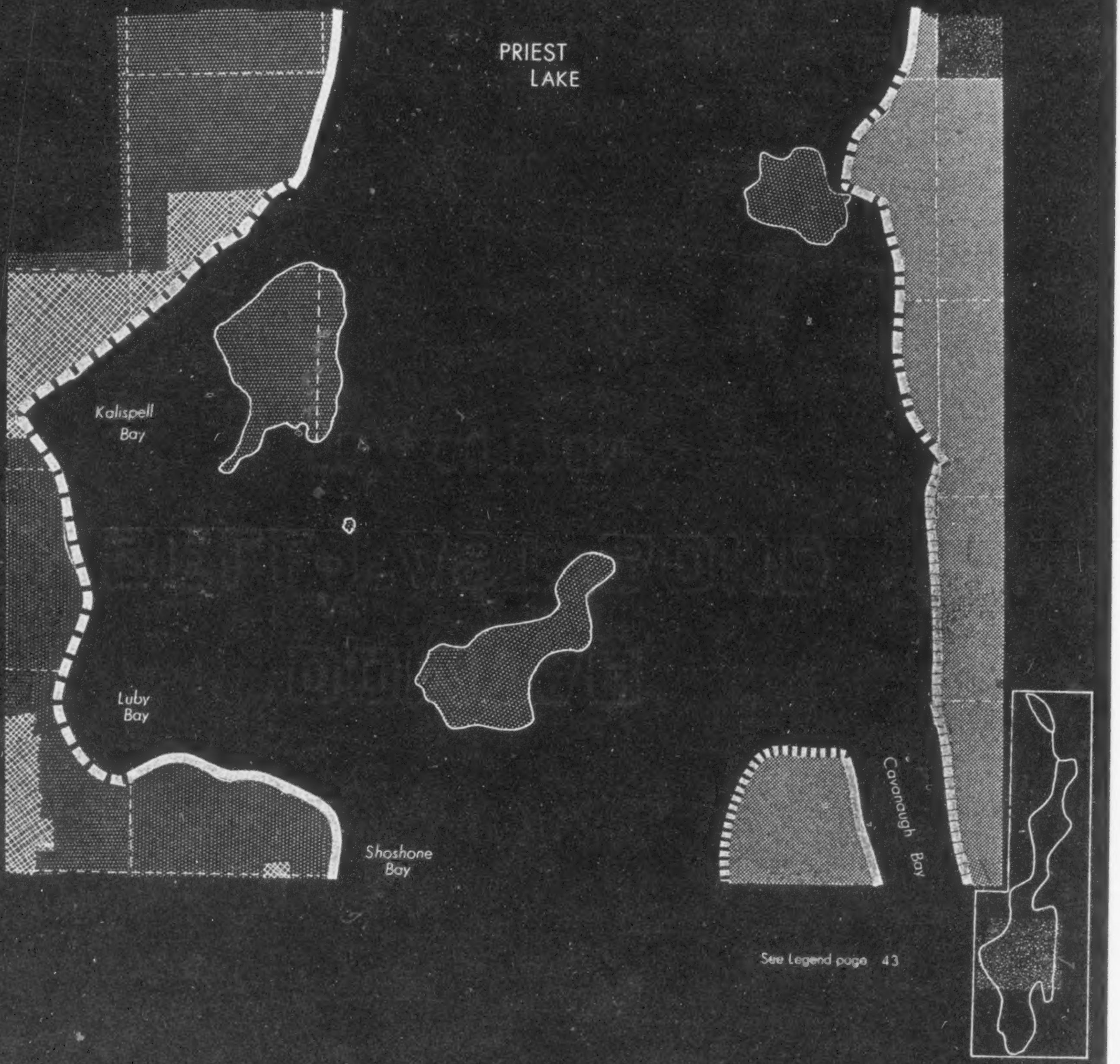
Source: Use zones—field study
Jurisdiction—National Forest Service records
Bonner County, Idaho Land Titles

Figure 4


PRIEST
LAKE
Outlet
Bay
miles
0
1.5

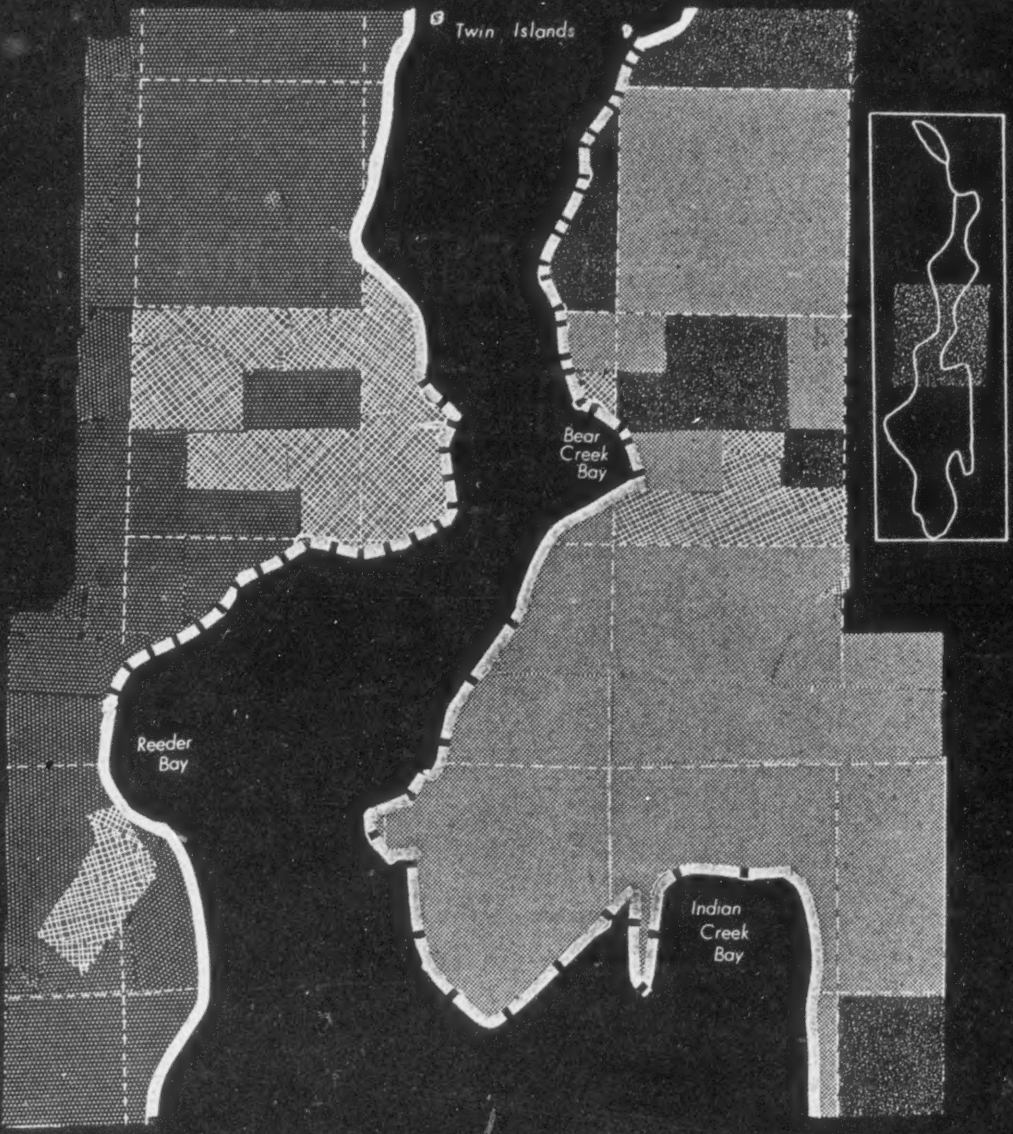
See Legend page 43

Figure 4A


PRIEST
LAKE
Kalispell
Bay
Luby
Bay
Shoshone
Bay
Cavanaugh Bay

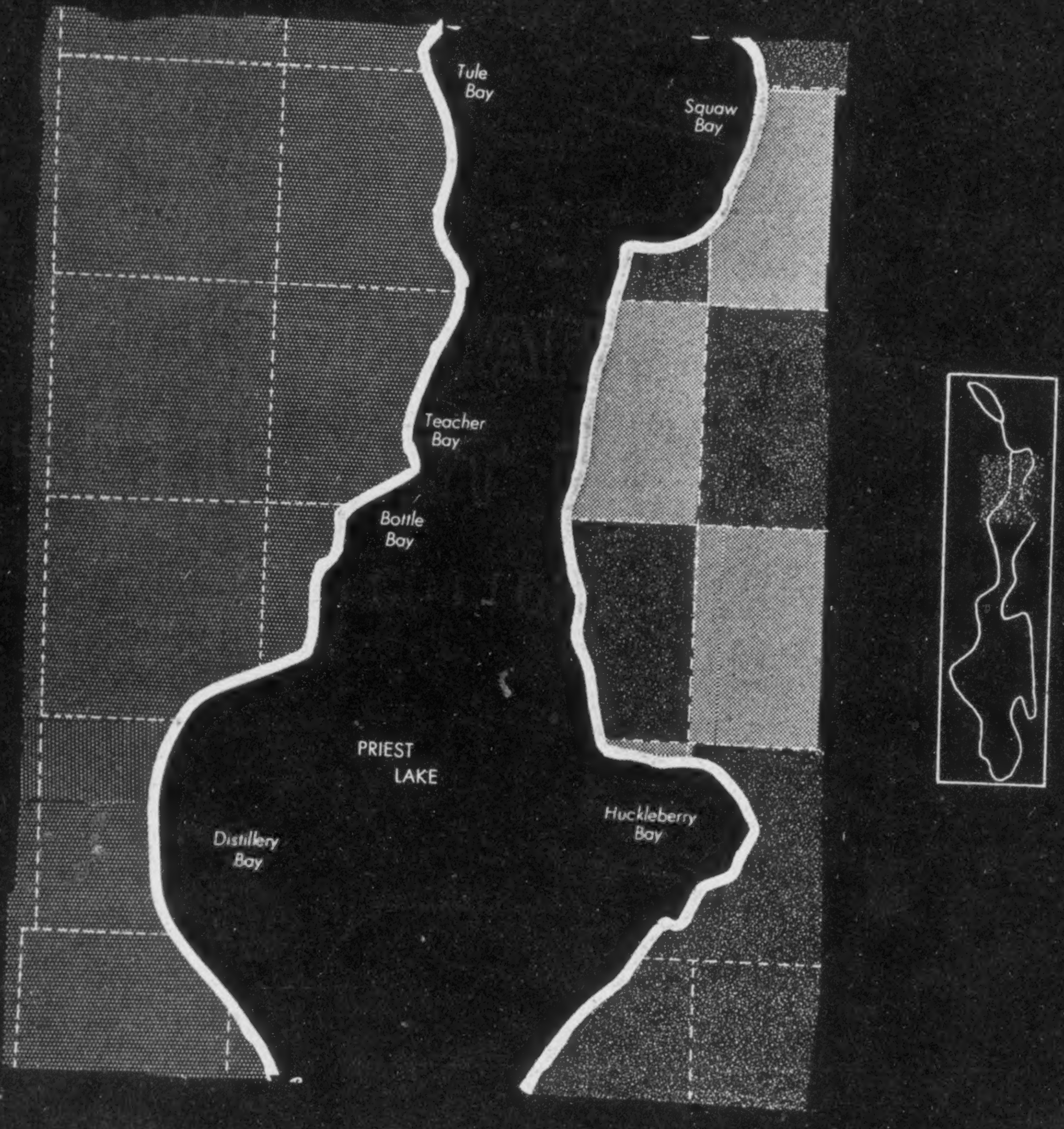
See Legend page 43

Figure 4B


Twin Islands
Bear Creek Bay
Reeder Bay
Indian Creek Bay

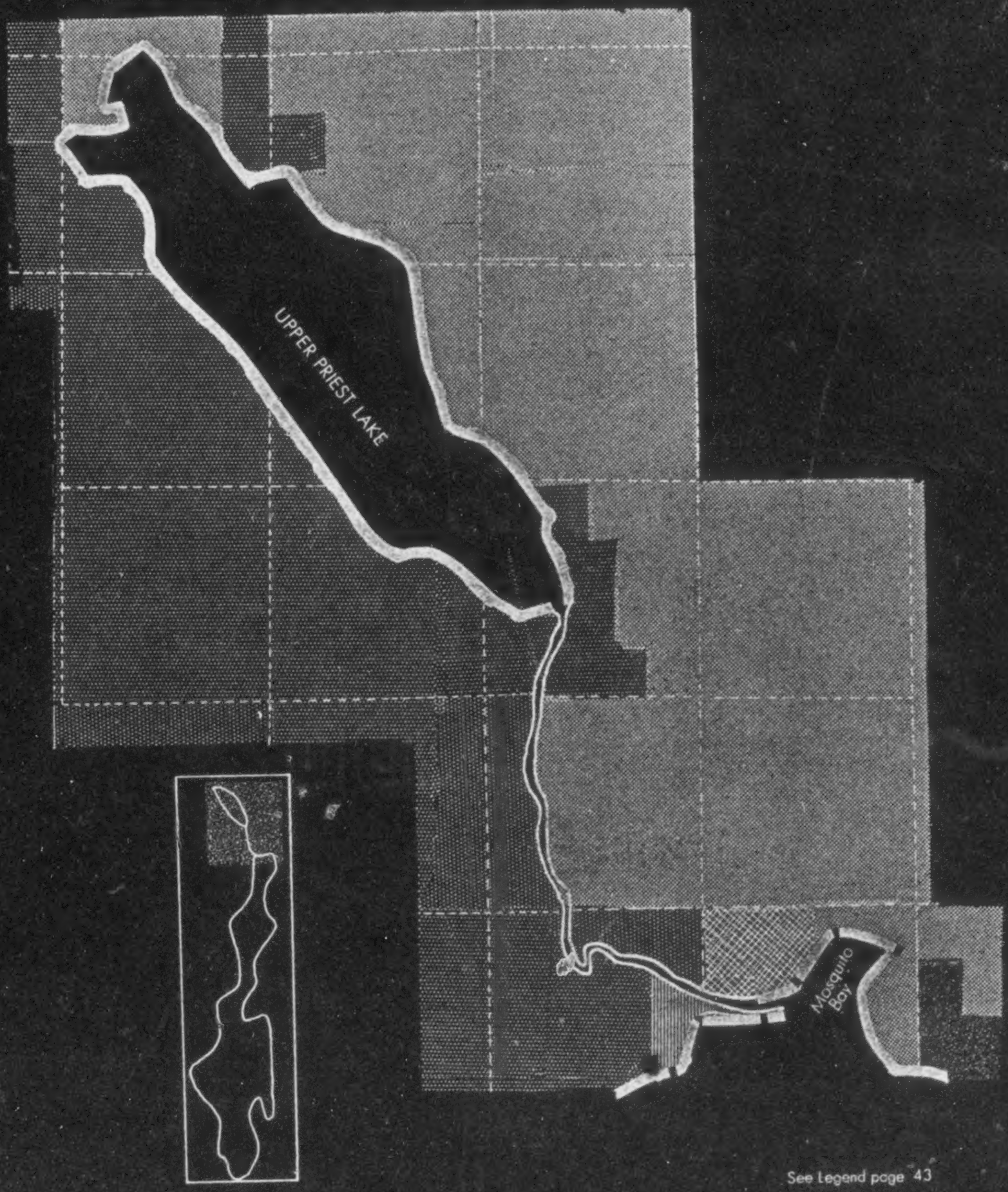
See Legend page 43

Figure 4C


Tule Bay
Squaw Bay
Teacher Bay
Bottle Bay
PRIEST LAKE
Huckleberry Bay
Distillery Bay

See Legend page 43

Figure 4D


UPPER PRIEST LAKE
Mosquito Bay

See Legend page 43

includes the lower slopes of Outlet Mountain, which are heavily treed down to the water level. The zone has shallow offshore waters. The land along the southern-most portion of the shoreline is privately owned, and the remainder belongs to the State of Idaho. There is no road into this area.

Use Zone 2 (Resort, Cottage, Campground)

Zone 2 includes resorts, campgrounds, cottages, and a marina. These varied uses have been grouped together because they are interspersed throughout the zone and together they form an intensive use zone which is quite distinct from the undeveloped zones to north and south.

The zone covers the shoreline from the outlet of the lake to the north end of Shoshone Bay. Land on the south side of Outlet Bay is owned by the state and leased to 13 cottage owners. A gauging station that measures the discharge of the lake into the Priest River is also situated on state land. A gentle backslope, a shallow bottom and afternoon sun make this a pleasant cottage area. The residents use the store at the Outlet Resort for supplies or else travel by boat to Coolin as there is no road into the area.

Across Outlet Bay to the north is the Outlet Resort and marina, and some private cottages. These are all situated on private land composed of small holdings. There are 43 buildings, about 20 of which are private cottages. This land has a good sandy beach, a flat backshore and large trees growing on it.

Immediately to the north again are two of the four Forest Service campgrounds that are situated on the mainland of Priest Lake. Outlet Campground is located nearer to the marina and the resort. It has 26 units while Osprey Campground has 17 units. The Forest Service provides drinking water, vaulted toilets and tent or trailer sites in these campgrounds at the cost of $2.00 per site per night. There is a length-of-stay limit of ten days at any one location for one summer, but this is not well enforced. Neither of these campgrounds has a dry beach although the Forest Service has constructed a breakwater at the Outlet site and a beach is forming. A shallow, sandy bottom is characteristic of both sites.

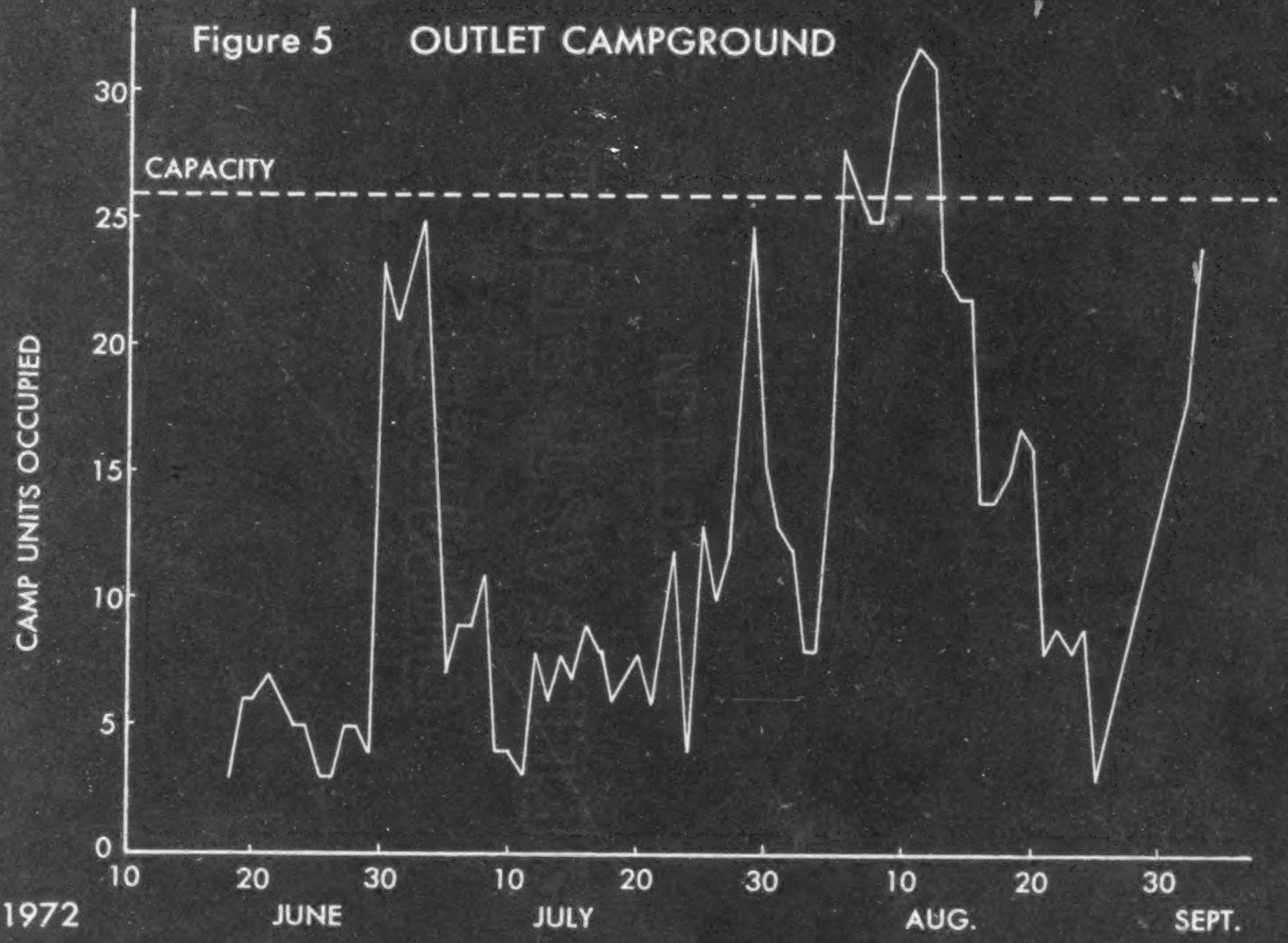
These are relatively new campgrounds and are not as well known or used as the Luby Bay and Reeder grounds. During the summer of 1972 Outlet had over 100 per cent usage during the periods July 25-30 and August 8-16 (Fig. 5). Osprey had greater than 100 per cent usage over the weekends of July 4 and July 30 and on August 16 (Fig. 5A). One hundred per cent usage refers to the number of parties that the campground can hold, allowing one site for each group of campers. If this number is exceeded, some of the individual sites had more than one group using them. During the rest of the summer, usage was between 15 and 95 per cent.

North of Osprey Campground is a series of cottage tracts also on lease from the National Forest Service. These extend into the north end of Shoshone Bay and include the Osprey, Neopit, Neopit View and Shoshone tracts. There are 70 cottages in this area. A steep, heavily treed bank is evident along the shoreline but the slope decreases about 20 yards back from the water. The offshore gradient is gentle. A dirt road connecting state highway 57 to the Kalispell Bay area passes through this zone and provides access to the campgrounds and cottages.

Use Zone 3 (Recreational, Undeveloped)

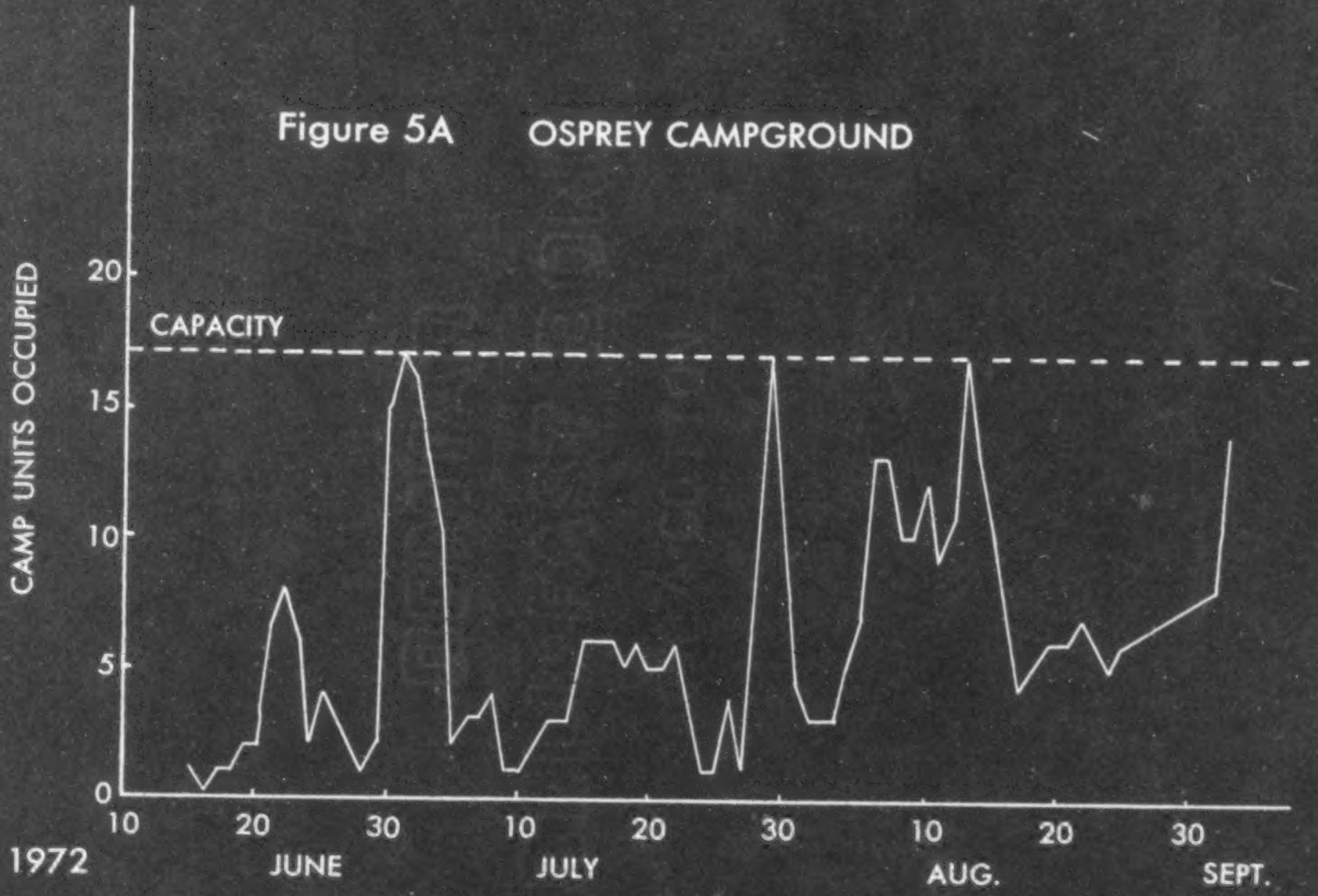
This zone extends from the north end of Shoshone Bay to the south end of Luby Bay. Woodrat Mine and the two cottages which are located here come under the jurisdiction of the National Forest. This is a zone of little use because of the steep offshore and backshore gradients, bedrock down to the water level and few small beaches.

Figure 5 OUTLET CAMPGROUND



Source: Kaniksu National Forest data

Figure 5A OSPREY CAMPGROUND



Source: Kaniksu National Forest data

Use Zone 4 (Resort, Cottage, Campground)

The southern section of this zone, from Luby Bay north to the Priest Lake Marina, is owned by the National Forest Service. It contains a campground, a public boat ramp, a resort, two marinas and most of the zone's 70 leased cottages.

Luby Bay Campground with 52 sites is the largest one operated by the Forest Service. Drinking water and washrooms with running water are provided. The tent and trailer sites have picnic tables and fire pits; chopped firewood is provided at a few central locations. The campground is split into two tiers. The upper one is located across the unpaved road that connects the Outlet area with Kalispell Bay. Shale paths are used in both tiers to stop people from walking on the underbrush. The ground cover is almost non-existent and a dirt through-road makes the campgrounds very dusty during extended rainless periods.

The area has excellent beaches and is popular with young families because of the warm, shallow water and the sandy bottom. The water is only 3.5 feet deep 200 yards from shore. The swimming area is roped-off so that boats and water skiers are not a hazard. Use of this campsite reached or exceeded 100 per cent during the summer of 1972 on the weekends of July 4, July 30, August 10 and September 4 (Labor Day), as well as the week of August 3 to 8 (Fig. 5B).

Hill's Resort is well known and well used and has no vacancies for most of the summer. The marina is run by the resort but the general public can rent boats. Some of the campers make use of this service. The public boat-loading ramp was built by the Forest Service and is over-used on the weekends. Many people who make use of the island camp-

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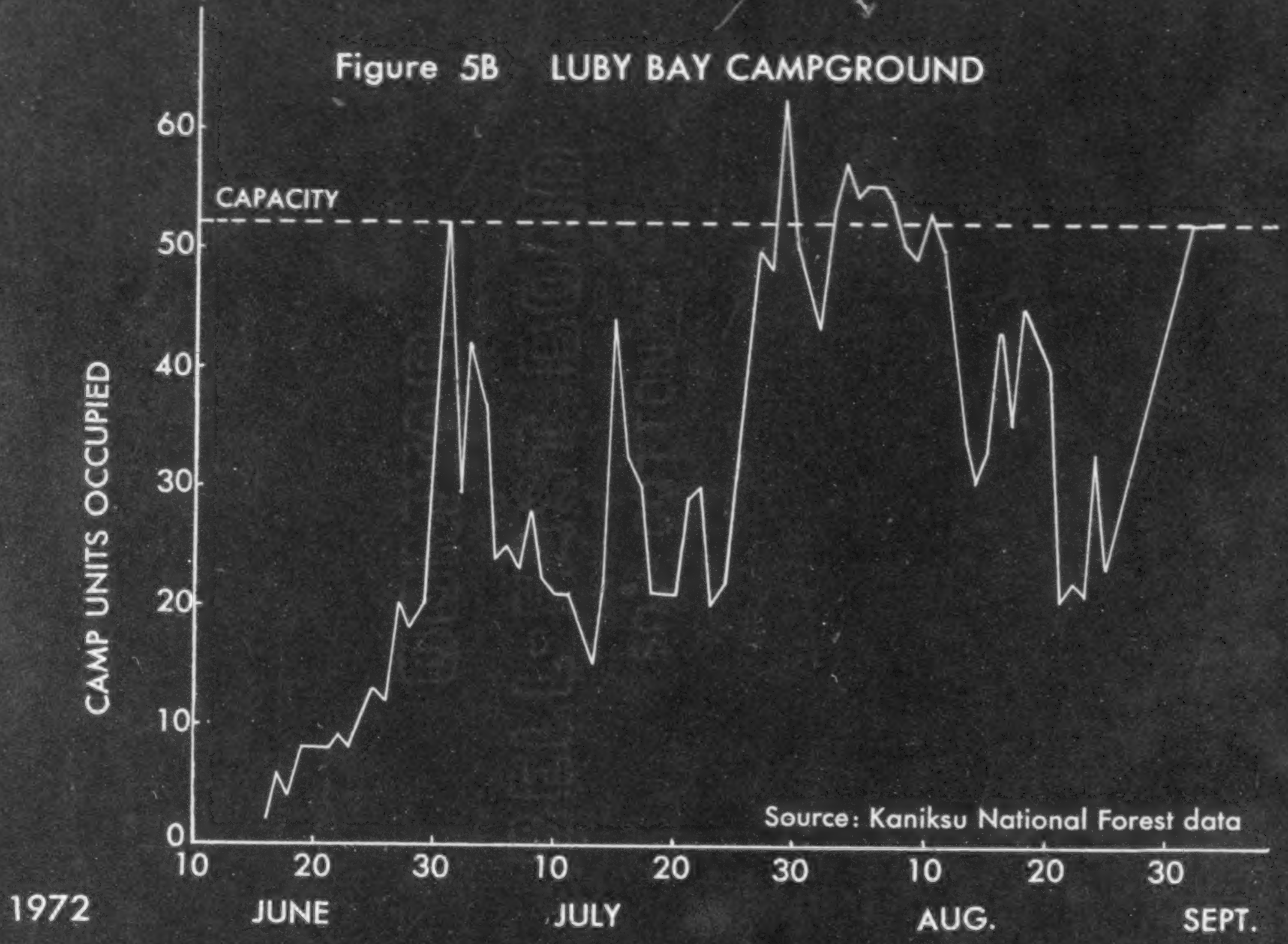
[7] A resort is a place frequented by people for relaxation or recreation and whose economic viability is largely based upon the tourist industry.

Figure 5B LUBY BAY CAMPGROUND



Source: Kaniksu National Forest data

sites leave their vehicles in the parking lot provided at the ramp. A fee is charged by the marinas for boat loading and unloading so more people tend to use the public ramp. On Sunday evenings, however, most of the marinas do a brisk business. The Priest Lake Marina is also located on National Forest land and provides service to the Kalispell Bay area. A boat show-room, store and cafe are part of its operations.

The remainder of use zone 4 includes the shoreline north of the Priest Lake Marina in Kalispell Bay to Indian Rock. This half of the zone is privately owned. A resort, cottages, and permanent residences are located in this section. It has a fairly flat backshore and offshore gradient and the quality of the beaches is fair.

There are approximately 80 cottages and permanent homes in this northern section. The entire lakeshore, except for the resort, is in small properties. Improvements on or to the land must be approved by the State of Idaho. Linger Longer Resort and the tract of land north of it are owned by the Pioneer Education Society. This area has a large beach with very fine white sand, but it suffers from a steep drop-off within 40 feet of the shoreline.

Use Zone 5 (Recreational, Undeveloped)

This is a zone of limited use, all of which falls within the Kaniksu National Forest except for a small piece of privately owned land on the south shore of Reeder Bay. For the most part, it has small beaches with rocky bottoms, steep offshore gradients and backshore slopes of intermediate grades. A 40 year old stand of mixed timber covers the area. Indian Rock is of historic interest because of its petroglyphs, though the rocks with the paintings on them are difficult to approach from the water. West of the petroglyphs is a small cove with a beach that could be developed as a mooring site. The shoreline in Reeder Bay is more protected and there are some sandy beaches here. Three cottages have been built on the privately owned land.

Use Zone 6 (Resort, Cottage, Campground)

This is a zone of intensive use. It is comparable to Zones 2 and 4 in intensity of development though it differs from them in having no campgrounds. It extends from Reeder Creek to Hangman's Resort, which is about one mile northwest of Granite Creek, and can be reached by turning east at Nordman on a paved extension of highway 57.

That part of Reeder Bay which is under National Forest Service jurisdiction includes Elkin's Resort and Marina, Reeder Bay campground, Ledgewood picnic area, and some cottages (see Plate 18). Most of the resort site is privately owned but the Forest Service owns the land along the shoreline. Reeder Bay campground has 19 camp sites and six picnic units and all are over-used. Greater than 100 per cent usage occurred over the July 4 weekend and from July 21 to August 15, 1972 (Fig. 5C). This campground has paved roads, which eliminates much of the dust problem, and is also completely accessible by paved roads. The Ledgewood picnic area, located about one-quarter mile east of Reeder Bay campground, was built for day use only and provides twelve picnic sites for the public. The sites come equipped with tables, fireplaces and grills, and chopped firewood. Vaulted toilets were installed during July, 1972. Both the campground and picnic area have roped-off swimming zones. There are nine cottages in this area on lease from the National Forest Service.

The shore area in Reeder Bay is covered with white pine and cedar and much coarse white sand. There is a steep bank down to the shoreline at the Reeder Bay campground; but a flat area behind the bank is used for camping sites. The offshore gradient is quite steep at the picnic area but it is shallow along the shoreline of Elkin's resort and the campground. The promontories of the small bays within Reeder Bay are very rocky.

The remainder of the shoreline in this zone is

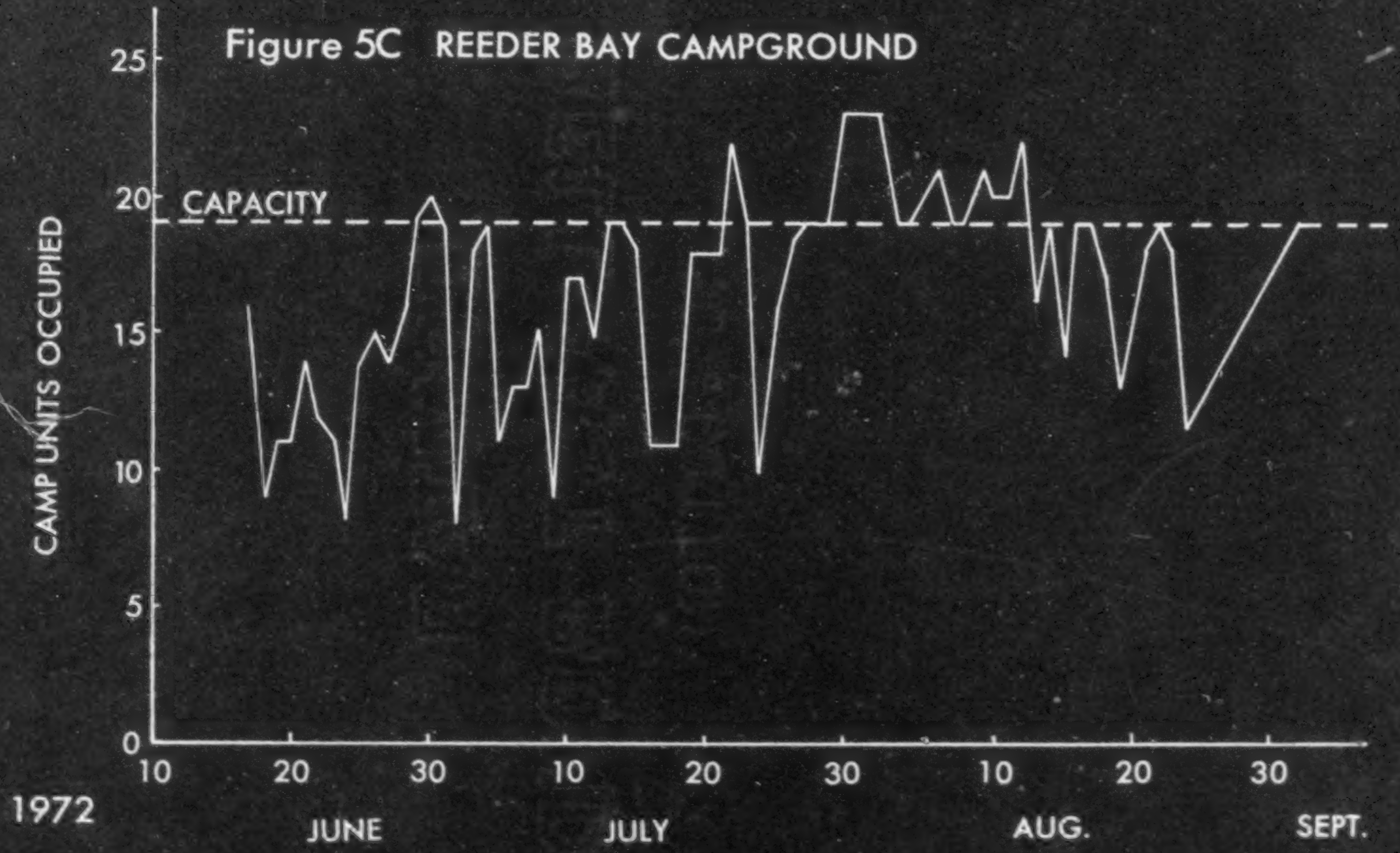


Figure 5C REEDER BAY CAMPGROUND

Source: Kaniksu National Forest data

owned by various small owners and is in intensive use. There are six resorts, all of which have docking facilities, and a marina at Granite Creek. There are stores, bars, gasoline outlets for boats, rooms for lodging, as well as private homes and cottages. Much of the activity in this area takes place away from the beaches as many of the private homes are not located on waterfront lots. A condominium housing project was started two years ago at the Kaniksu resort but it is, as yet, unfinished. There is also a trailer court near the Barriers resort. The roads are gravelled and the main road is oiled. The area has a flat backshore that extends in some places for one and one-half miles inland. The beach materials vary from fine sand to coarse pebbles and rock.

Use Zone 7 (Recreational, Undeveloped)

This is an undeveloped recreational zone that extends from Hangman's Resort north to Tule Bay. It is entirely within the Kaniksu National Forest, and is for the most part uninhabited; there are only 12 cottage leases in this entire zone. Boats provide the main mode of access although it is possible to walk to the lakeshore from the new Beaver Creek highway, completed in August, 1972. The area is open to the public for camping and day-use purposes but, because of the access problem, it receives less use than the south end of the lake.

There are a few long beaches and protected bays for swimming. There are also some flat areas for camping, but for the most part the zone is heavily treed to the shoreline.

The Tepee Creek Natural Area is located in the north end of this use zone, south of Tule Bay. It was established to preserve a remnant of the western white pine climax vegetation for scientific study and is not intended for recreational use.[8]

Use Zone 8 (Cottage, Campground)

This zone extends from Tule Bay to the mouth of the Thorofare, then eastward to the end of Mosquito Bay. The land in north Tule Bay is part of the National Forest and is scheduled for development as a campground when funds are available. It receives some use now but the site is unimproved according to National Forest Service Standards and no fees are charged for users. The only access used to be by boat but the new highway to Beaver Creek now provides a paved road into the camp area. A fairly flat backshore, a gravel beach and a steep offshore gradient characterize this site.

The Beaver Creek Camp Association owns the parcel of forested land north of the campground, to the sandspit at the mouth of the Thorofare. The 23 cottages on this land are owned by people who teach or who have taught at Washington State University. In 1948, the land was given to Wilson Compton in return for his services as a lobbyist for the logging industry in Washington, D.C. The National Forest Service would like to incorporate the area in their proposed campground, but this is most unlikely. The people of the Beaver Creek Camp Association consider the area a retreat and are unhappy with the opening of the highway.[9] They feel the increased number of campers will bring much noise and untidiness.

The property on the north side of the mouth of the Thorofare is divided into small holdings. It is very flat, both backshore and offshore, and is almost completely covered with fine sand. There are cottages on the land and some of the owners have started subdividing the lots for public purchase in a development known as Sandpiper Shores. It is the only area on the lake in which lots are being offered for sale.

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[8] Priest Lake Recreation Area Plan, op. cit., footnote 2, p. 5.

The last portion of this use zone is Mosquito Bay. It has a long, wide beach and soft sand and used to be the site of a campground run by the State Parks Department. It was closed in 1971 because of over-use, lack of proper facilities and lack of personnel to police it. There was a poor relationship between activity and improvements in Mosquito Bay and pollution of the Bay's water resulted. The site is still used, the toilet facilities are still there, but now there is no fee charged and no garbage collection. The area still suffers from over-use as the road remains open.

Use Zone 9 (Recreational, Undeveloped)

The land in this extended zone belongs to either Diamond International Corporation or the State of Idaho. It is an undeveloped recreational use zone except for 14 State lots and a few cottages occupied by Diamond's employees.

South of Mosquito Bay, in the area north of Lion Creek, the Idaho State Parks Department wants to develop a campground, despite a poor beach and frequent on-shore winds. The idea is to have the campers use Mosquito Bay for their water-based activities.

Large beaches with flat backshores and slightly grainy sand cover both ends of Squaw Bay. Diamond International owns the land on which these beaches are situated. The State of Idaho owns the shoreline around the middle of the Bay, but this section is not in use as there is no beach and a steep offshore gradient.

Heavy day use and illegal camping at the south end of the bay have prompted Diamond to erect outhouses and provide garbage pick-up. Careful selective cutting has also enhanced beach quality by providing more light. However, the company is being very cautious about providing too many facilities. In a similar situation in California, a paper company found itself penalized for providing public facilities on part of its land for more than 20 years. When it eventually tried to end the public access, the users obtained a court order which frustrated the company's plans and effectively transferred the land to the public domain.[10]

Diamond International owns the land on the south end of Squaw Bay which includes Canoe Point. This area has no development on it although the beach is excellent. The State of Idaho owns the mile-long section (Lots 284-295) south of Canoe Point. The area has a poor waterfront with steep backshore gradients and rocky shorelines. Diamond International owns the land south of the State lots to Two-Mouth Creek. This stretch of land has a flat backshore and large trees but not very much dry beach; there are a few cottages.

The land on the north side of Huckleberry Bay west to the southern outlet of Two-Mouth Creek belongs to the State (Lots 270 to 283). This area has an excellent beach with fine sand, a nearly flat backshore and an easy offshore gradient.

The southern shoreline belongs to Diamond International, except for one State lot on the south side of Huckleberry Bay. A logging road provides access to the lake near the Goose Creek outlet in Huckleberry Bay, but the lakeshore south of the Bay is not used by the public because of the heavy tree cover and the steep backshore gradient.

Use Zone 10 (Cottage)

This is a cottage zone which is favored by steep backshore and offshore gradients, bedrock outcrops and a heavily treed shoreline. There are no public beaches here. The 71 cottages are built on land that is owned by either Diamond International, the State of Idaho (12 lots, 265 A to L) or private owners. The private lots are located in Bear Creek Bay, the state lots are immediately north of these and Diamond International owns the rest of the land. Because of the narrowness of the lake at this point, the cottagers are able to obtain services, such as gasoline and food supplies, from use zone 6 on the west shore.

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[10] Personal communication, Jim Blaine, Resource Specialist, Diamond Lumber Division, Diamond International Corporation.

Use Zone 11 (Recreational, Undeveloped)

This is a zone of limited use that has no cottages in it. Timber Land Resources owns the land along Bear Creek; a very small section of shoreline immediately southeast of the cottages in Bear Creek Bay belongs to Diamond International; and the rest of the land belongs to the State of Idaho. The state land south of the bay has no beaches and is characterized by steep offshore and backshore gradients. Bear Creek Bay is a flat marshland and the shallow basin-like bay collects sediments.

Use Zone 12 (Cottage, Campground)

A zone of intensive use extends from Cape Horn to just east of Indian Creek. The entire area is under the jurisdiction of the State of Idaho. There are 128 cottages, a campground, and a marina. The marina and public beach are located on lots 178-194.

In this zone 128 cottages have been built on 117 leased lots (lots 195-265, 214 A-Z, 220 A-U). Indian Creek Bay and Cape Horn have gentle backshore slopes, but the area in between is steeper. The submarine slope is quite steep except for the shallow area in Indian Creek Bay. Sand is the principal beach material in the bay; the rest of the area generally has a rocky shoreline. Breakwaters have been built throughout to improve beach quality.

Indian Creek State Park provides 22 trailer sites and 115 camping sites. The trailer sites have running water, sewage disposal and electricity. There are six additional sites in an overflow area, and a picnic area which receives little use because of a poor access road. The park has a roped-off swimming area, a wading pool, and a water-ski beach area. Lifeguards are on duty daily. A store is located just outside the park. One of the main attractions seems to be the hot showers that are provided for a nominal fee to the user.

The state park has a large beach area covered with very fine sand, a flat backshore and a gradual slope offshore. These physical attractions, along with the extensive range of facilities, bring in large numbers of people. The campground was completely filled over the July 4th weekend, and from July 23rd to August 14th inclusive. According to unpublished statistics gathered by the Parks Department, the management at the gate turned away 1,075 campers during the latter period. Usage during these periods was greater than 100 per cent (Fig. 5D). Between 50 and 100 cars daily were parked outside the campground; park officials allowed their owners to camp with families and friends already occupying a site within the campground.

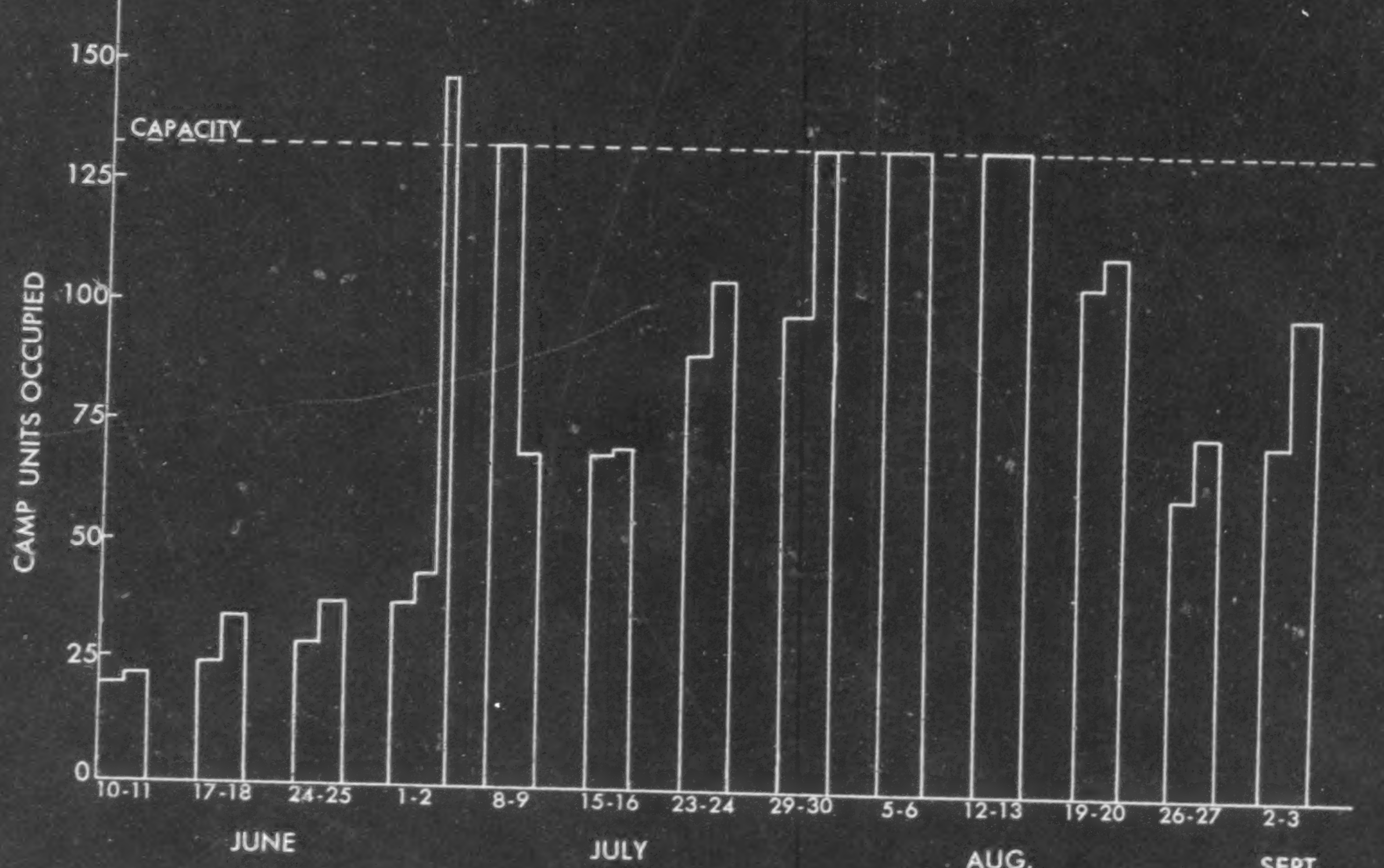
Users of the Indian Creek State Park are charged daily rates that are dependent upon the facilities provided at the individual sites. The charges for the summer of 1972 were as follows: $2.00 per vehicle, $2.50 per vehicle with water and electrical hookups, and $3.00 per vehicle with water and electrical hookups as well as sewage disposal. The rates will increase for the 1973 season. The length of stay in the park is 15 days in any 30 day period.

Use Zone 13 (Recreational, Undeveloped)

This very small zone has no present use other than as an access route to Indian Creek via the east shore road. The area has very steep banks, a rocky shoreline and a steep

Figure 5 D

INDIAN CREEK CAMPGROUND
WEEKENDS - 1972



Source: State of Idaho Parks and Recreation data offshore gradient. It is State-owned.

Use Zone 14 (Cottage)

This zone is dominated by cottages, 104 of them on State lots 86 to 177. The area has varied physical site characteristics which range from sandy beaches with gentle gradients to rocky areas with very steep gradients. The area south of Eightmile Island to Hunt Creek has a very steep offshore gradient; in some places it also has a steep backshore slope with serious gully erosion. The narrow passage between Eightmile Island and the mainland is the site of a sandspit and has to be dredged annually to keep it open for through boat traffic.

Use Zone 15 (Non-recreational)

The shoreland in this zone has very severe physical limitations. A steep backshore slope dropping rapidly into the deepest part of the lake, coupled with a rocky shoreline and no beaches, leaves the area with little use potential. There are no cottages and the only improvement to the land is the east shore road which runs parallel and very close to the shoreline. This gravelled road provides the only through road along the east side of the lake. It is full of potholes and is very dusty, but the State Department of Lands is reluctant to improve it because of the increased number of visitors that it would bring into the Indian Creek Area.

Use Zone 16 (Cottage, Resort)

This small zone at the head of Cavanaugh Bay includes cottages, a resort, a store and a marina. It has a sandy beach, a flat backshore and a fairly gentle offshore slope. Eleven cottages, the Cavanaugh Bay resort, and the store and marina are on privately owned land. The Idaho State Department of Lands offices are located across the road from the resort area. North-east of these buildings are 20 state lots that are managed for the endowment fund (lots 65-85).

Use Zone 17 (Recreational, Undeveloped)

The land at the southwest corner of Cavanaugh Bay is owned by Diamond International Corporation, but otherwise the zone is under the jurisdiction of the State of Idaho. There are remnants of past use, in the derelict remains of a marina and a loading dock, but present use is restricted to two cottages on the Diamond International land. Along most of the waterfront, the offshore and backshore gradients are very steep, but they become much gentler at the head of the bay.

Use Zone 18 (Cottage)

This zone extends from Rocky Point to Coolin. It includes the town of Coolin with a marina, post office, liquor store, general store and private residences, and has the longest stretch of cottages on the lake, 213 in all.

The Town of Coolin owns about seven-tenths of a mile of shoreline; this is part of a beach which extends both north and south of the townsite and which houses 32 cottages. The land in this area has a flat backshore and a shallow offshore gradient.

North of Coolin to Hess Point is a zone of 128 summer homes. Most of the waterfront has good sandy beaches with shallow offshore and backshore slopes, but there are some small areas of steep gradient.

The state leases endowment lands to 23 of the cottage owners in this area. These lots are located just south of Steamboat Bay (State lots A-M), and north of the bay about halfway to Hess Point (State lots 1-10). The rest of the waterfront is occupied by private owners who are under state control with regard to the improvements made to their lots.

North of Hess Point to Rocky Point there are 53 cottages located on state lands (lots 11 - 64). The beach conditions vary; some sites have sand while others have breakwaters constructed on them to stabilize the beach materials. A shallow offshore gradient is found in the area east of Fourmile Island but around Rocky Point it is very steep.

Island Zone

The islands in Priest Lake are under the jurisdiction of the National Forest Service, with the exception of East Twin Island which is owned by the Burlington Northern Railway Company.

Kalispell Island is the largest island. It has many beaches with coarse sand, large trees, and a gentle offshore gradient. There are four term permit holders whose cottages will have to be removed in 1986. There are also five campgrounds which offer sealed vault toilets and garbage pickup, but no firewood. A hiking trail provides access to the various campgrounds. These are very popular because they are free and because the island is easily reached from the public boat ramp in Kalispell Bay. Usage for the 1972 summer season for the entire island was close to 45 per cent.

Bartoo Island is the second largest island. Its beaches have fine sand but they are small and those on the eastern side have a very steep offshore gradient. Nonetheless the island is popular for day use. Three cottages have been built on National Forest land and will be removed in 1986. The sites will then be developed for public use if the land can absorb the increased usage. There are also two cottages on a privately-owned parcel of 24 acres, the only privately-owned land on the islands. A Forest Service campground was located on the island; the owner of the private land requested that the east boundary of his lot be resurveyed and it was determined that the campground was located partially on his land. Subsequently the grounds were closed. However, day use of this area is still popular and the Forest Service does provide garbage collection.

Eightmile Island has a steep offshore slope on its west side, but it is almost joined to use zone 14 to the east. There are some beaches on the island, and one cottage which is on lease from the Forest Service until 1981. There is not much use by campers or picnickers, perhaps because the nearness of the mainland takes away something of the feeling of being on an island.

Fourmile Island has only one small beach and so has limited use for camping or picnicking. Bedrock extends below the waterline along most of the shore. There are no cottages and the only building is a rock hut that has been built into the side of a hill.

Papoose Island is a very small island between Kalispell and Bartoo Islands. It is used for picnics or for camping (by a small group). There are no beaches but one spot is available for beaching a boat. The island is covered with shrubs and trees growing on a thin soil that covers some of the bedrock. It has been badly abused through over-use and will be closed to the public in 1973.

The remaining two islands are East and West Twin Islands. They are situated in the neck of the lake south of Huckleberry and Distillery Bays. The bedrock is exposed on these islands. West Twin is part of the Kaniksu National Forest and the Forest Service will also prohibit use of this island in 1973 because of damage to the trees through public abuse. Burlington Northern Railway Company which owns East Twin Island is considering closing this island as well to protect it from public abuse.

Upper Priest Lake Zone

Upper Priest Lake was designated as a scenic area by the National Forest Service and the State of Idaho in 1965, and is jointly managed by them. The area is to be kept in a semi-wild state, and no roads or private leases will be allowed. Access is now provided by a hiking trail from Beaver Creek to the two Forest Service campgrounds on the west side of the lake. There is also boat access through the Thorofare.

The west side of the Upper Lake north to the outlet of the Upper Priest River is under the jurisdiction of the National Forest Service. There are two campgrounds along this shoreline, Plowboy Campground at the south end and Navigation Campground at the north end. They provide toilets, firewood and fire grills, and picnic tables. No fees are charged for their use. Both of these campgrounds were used to about 20 per cent of their theoretical capacity during 1972. Plowboy has a small beach and Navigation has none. The shoreline between them has very steep banks that are generally treed to the waterline. A deserted cabin on the west side of the mouth of the Upper River is situated on a sandy area that has a very shallow offshore gradient.

The east side of the lake is under the jurisdiction of the State of Idaho with the exception of two sections of National Forest land. One section is located at the north-east end of the lake and the other section on the north-east side of the mouth of the Thorofare (Fig.4D). A batholith outcrop occurs about one mile north of the Thorofare. There are some sandy beaches on this side of the lake. Longer hours of sunlight reaching the shore areas, gentler offshore gradients and a gentle backshore slope make this side of the lake more highly used. The water in the Upper Lake is colder than in Priest Lake and people do not swim until early August. There are no improvements to the land on this side of the lake, except for a hiking trail at the north end. The Forest Service picks up garbage from this shore as well as from the west shore of the lake.

The Thorofare

The Thorofare is a small, navigable waterway which connects Priest Lake with Upper Priest Lake, and generally separates the National Forest Service land on the west from the Idaho State land on the east. There are no buildings located in this area, and dense growth lines the waterway on each bank. The banks themselves are composed mainly of soft sand and require protection from erosion. The problem is exacerbated by heavy motorboat use on weekends and has caused the placement of gabion mats on the east bank at the south entrance. A hiking trail along the west side of the Thorofare connects the Upper Priest and Priest Lakes.

SUMMARY

The application of use zones to the shoreline of Priest Lake provides a valuable interpretive tool for determining patterns of present use. The zones reveal that the lakeshore undergoes both recreational and non-recreational use. This study is concerned with the land used for recreational purposes, whether developed or undeveloped at present. Developed land for public or private use includes campgrounds, resorts and cottages.

Table 1

PRIEST LAKE: JURISDICTION AND USE OF SHORELINE

Land Use	Jurisdiction (Miles of Shoreline)				
	Forest Service	State of Idaho	Private	Coolin	Totals
Undeveloped Recreational	10.6	5.1	5.6	-	21.3
Developed Recreational	6.4	11.6	9.4	0.6	28.0
Non-recreational	-	4.8	1.2	-	6.0
TOTALS	17.0	21.5	16.2	0.6	55.3

The two lakes, the Thorofare, and the islands have a total of eighty miles of shoreline. Priest Lake itself accounts for about 55 miles, which is classified in Table 1 as "non-recreational" land (6 miles), "undeveloped" recreational land (21 miles) and as "developed" recreational land (28 miles). About 10.6 miles of undeveloped recreational shoreland belongs to the National Forest Service while 5.1 miles belongs to the State of Idaho and 5.6 miles is privately owned. Developed recreational land has 11.6 miles of state ownership and 6.4 miles of Forest Service ownership. Private owners control 9.4 miles of developed recreational land and the town of Coolin controls 0.6 miles.

The developed recreational land has been zoned under four different groupings. Resorts, cottages, and campgrounds is the group with the most intensive use of the developed shoreline on the lake. This use group accounts for 10.0 miles of shoreline. Cottages zoned as entire use groups cover 9.8 miles of the shore, the cottages and campground use zones cover 7.2 miles of the shore, and the smallest use zone, cottages and a resort, occupies one mile of lakeshore.

There are 11 improved campgrounds on the lake; all are located on land developed for public use. Five of the sites on the mainland charge fees, one of these is under state jurisdiction while the rest are under the jurisdiction of the National Forest Service. No user fee is charged at the six remaining sites. They are accessible only by boat with the exception of the two campgrounds on the Upper Lake which are also accessible by a hiking trail. All of these sites are managed by the Forest Service. There are also two sites on the lake that were once campgrounds and are now officially closed; Mosquito Bay, under jurisdiction of the State of Idaho, and the Forest Service campground on Baritoo Island. These areas are still used.

Sections of the lakeshore are also used for camping by small groups, though no facilities are provided here. Most camping of this type takes place in the undeveloped recreational use zones in the north end of Priest Lake and in the Upper Lake.

The ownership of land along the lakeshore has had much to do with determining the present use of land. Future use of the lakeshore will depend greatly on ownership. Although the capability of the land for recreational use determines the amount of use the area can withstand, the question of future development of the area rests, in the long run, with the owners.

CHAPTER IV

CAPABILITY OF THE PRIEST LAKE SHORELANDS FOR RECREATIONAL USE

The need for land capability inventories has been created by years of social and technological changes which have put increasing pressure on finite land resources. Increased leisure time, greater numbers of vehicles travelling at increased speeds, more facilities for public use and enjoyment, better temporary accommodation and greater accessibility are some reasons for change in the demands for space outside the city. All land must now be put to its optimum use and capability inventories are invaluable aids in determining these optimum uses.

THE CANADA LAND INVENTORY

The Canada Land Inventory (henceforth referred to as CLI) is a land evaluation and classification system that was developed under the Agricultural Rehabilitation and Development Act in 1965. The inventory was designed for planning rather than for management. Its broad objective is to provide comprehensive information about land capability as a base for resource and land use planning. Assessments of physical land capability for agriculture, forestry, wildlife and recreation are included as separate sectors in the survey. Specific objectives are defined for each sector of the inventory so that land capability can be determined with great accuracy for the surveyed areas of the country.

Recreation Sector

The recreation sector of the CLI was designed to provide an estimate of the quantity, quality and location of potential outdoor recreational lands. The capability of the site is recognized and evaluated in terms of supporting and providing optimum conditions for recreational activities.

The following outline of the operating conditions for the CLI's outdoor recreation study has been adapted from Nowicki.[1] His review of the procedures involved in the capability inventory is a logical one and this author could not substantially improve upon it. A more recent edition of the Canada Land Inventory report concerning recreational capability has been published since Nowicki completed his thesis in 1969. This accounts for some of the changes in the material presented here.

The basis of the classification for outdoor recreation is "the quantity of recreation which may be generated and sustained per unit area of land per year under perfect market conditions."[2]

Some of the main provisions of the classification system are as follows:

> Land is ranked according to natural capability under existing conditions, whether in a natural or modified state. . . . No assumptions are made concerning its capability if it is given further major artificial modifications.
>
> Location and present access development do not influence classification (i.e. perfect market conditions prevail, which implies uniform demand and accessibility throughout the inventory area.)
>
> Present use of management factors do not influence ratings except that . . . land at present firmly committed to intensive urban or industrial use is not normally classified. . . .
>
> Sound recreation land management and development practices are assumed for all areas in practical relation to the natural capability of each . . . .[3]

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[1] J. J. Nowicki, Recreational Capability and Use of Some North-Central Alberta Lakes. (Unpublished M.A. Thesis, Department of Geography, University of Alberta, 1969), pp.

[2] The Canada Land Inventory, Department of Regional and Economic Expansion, Report No. 6: Land Capability, Classification for Outdoor Recreation (Ottawa, 1969), p. 7.

[3] Canada Land Inventory, op. cit., footnote 2, p. 7.

Land being assessed for CLI purposes is split into two broad divisions: upland and shoreland.

> Shoreland is a broad term embracing the various components of land fronting on a water body which is either capable of supporting recreational activity, or is large enough to do so. In practice, water bodies capable of supporting family boating are considered necessary for a shoreland (S) designation. Shoreland extends from the 5-foot depth contour at normal low water, inland from the shoreline to a natural boundary, or to a boundary which encompasses the direct zone of influence of the water body. In this inventory the zone of influence is assumed to reach a maximum of one mile in width for a class one unit on a large lake: other shoreland units will vary in width from about 800 feet . . . to one mile, depending on the nature of the shoreland and on its capability for recreation. . . . Shoreland components are defined as follows:-
>
> (a) Wet Beach: the area of a beach below the normal high water line, usually outward to the 5-foot depth contour at normal low water;
>
> (b) Dry Beach: the area of a beach above the normal summer high-water or high-tide level, but normally subject to wash by high water, or storm waves;
>
> (c) Beach: the width of the shore zone which includes the wet and dry beaches;
>
> (d) Backshore: that part of the shoreland reaching inland from the dry beach normally as far as the extreme extent of storm action or ice erosion. For purposes of the inventory, however, backshore refers to the zone of influence of the water body embracing the associated development area.
>
> Upland is all land other than shoreland.[4]

> . . . water bodies which are not considered large enough in terms of area (a pond or small lake) or wide enough, as in the case of stream corridors, are considered as upland even though the dominant recreational feature (e.g. angling or canoeing) may be associated with water. . . .[5]

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[4] Canada Land Inventory, op. cit., footnote 2, pp. 110 and 111.

[5] Canada Land Inventory, op. cit., footnote 2, p. 101.

According to the CLI classification, the Thorofare between Priest Lake and Upper Priest Lake should be labelled as upland, but this passageway provides a unique recreational experience for family boating between the two lakes and has therefore been considered as shoreland. This illustrates a problem that arises from the rigidity of the CLI classifications. The land should be rated as shoreland rather than upland not only because of its capability for supporting family boating but also because of its importance as the waterway linking the Upper Priest and Priest Lakes. Rating the corridor as upland would indicate limited capability as a water-way, which would be erroneous.

The entire study area at Priest Lake has been designated as shoreland. The letter "S" that indicates shoreland has been dropped from the mapping analysis.

It is basic to all the CLI inventories that the capability of the land is evaluated according to a predetermined set of conditions and classified according to a 7-class rating scale (Table 2).

Table 2

THE SEVEN CAPABILITY CLASSES

Class	Level of Capability
1	very high
2	high
3	moderately high
4	moderate
5	moderately low
6	low
7	very low

Source: Canada Land Inventory, Department of Regional and Economic Expansion, Report No. 6: Land Capability, Classification for Outdoor Recreation. (Ottawa, 1969), pp. 8-9.

Assignment of the capability classes illustrates the CLI's attempt at a quantitative approach in analysis. For example, capability classifications for shorelands are based on measurements of different physical aspects that include lake size, water quality, and beach and backshore characteristics. The requirements for the ratings of the shoreland subclasses, other than the specific controls outlined for beaches (Table 3), are not precisely laid down and depend upon the downgrading of capabilities according to the limitations of individual sites. In reviewing the qualities necessary for the various class ratings it becomes apparent that only the first and second capability classes can be quantitatively assigned. Subjectivity increases as the capability levels decrease. This presents a problem because the final ratings will be influenced by the background of the field worker; what one surveyor views as an asset may be viewed as a limitation by someone else. This means that the lower capability beaches which have been determined for Priest Lake are not necessarily comparable to beaches with similar rankings on different lakes.

The next section of the classification is a group of symbols which identify the recreational attractions.

> There are 25 recreational features which represent the major users of land for recreation as indicated by present popular preferences [Table 3]. The opportunities for recreation provided by a feature or combination of features, and assessed in terms of _quantity_ of use, determine the class of land unit. Although the recreational features are described individually, it is the exception rather than the rule that a land unit is ranked on the strength of a single feature. The class of a unit depends on the total quantity of recreation which the particular association of features within the land unit is judged capable of generating per unit area on an annual basis.[5]

A maximum of three symbols can be recorded because of mapping limitations. Use of three symbols is not mandatory but usually all are applied unless an area does not have

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[5] Canada Land Inventory, _op_. _cit_., footnote 2, pp. 9-10.

Table 3

CLI RECREATION FEATURES OR SUBCLASSES

Symbol	Recreation Feature or Subclass	Description
A	Angling	Land providing access to water with natural capability for production, harvesting and/or viewing of sport fish.
B	Beach	Shoreland capable of supporting beach activities.
C	Canoe Tripping	Land which fronts onto and provides direct access to waterways with capability for canoe tripping.
D	Deep Inshore Water	Shoreland with deeper water inshore suitable for swimming or boat mooring or launching.
E	Vegetation	Land with significant vegetation.
F	Waterfalls and Rapids	
G	Glacier	Glacier or area offering a glacier view or experience.
H	Historic Site	Land with historic significance.
J	Gathering and Collecting	Areas offering particular opportunities for gathering or collecting items of popular interest.
K	Organized Camping	Shoreland or upland associated with a recreation feature suited to organized tent or trailer camping.
L	Landforms	Areas containing natural landform features other than rock formations.
M	Small Surface Waters	Frequent small water bodies or continuous streams.
N	Lodging	Land suited to family cottage or other recreation lodging use.
O	Upland Wildlife	Land with capability for viewing or hunting of upland wildlife.

Table 3 -- Continued

Symbol	Recreation Feature or Subclass	Description
P	Cultural Landscape Pattern	Land exhibiting diversity of cultural landscape.
Q	Topographic Patterns	Patterns of topography and landform, or land and water, exhibiting diversity of natural landscape.
R	Rock Formations	Rock and rock formations or associated geological or erosional phenomena.
S	Skiing Area	A combination of slopes, snow conditions, and climate, capable of providing downhill skiing opportunities during a normal season.
T	Thermal Springs	Land containing thermal springs.
U	Deep Water Boat Tripping	Shoreland fronting water suitable for yachts and other large craft; yachting or deep water boat tripping.
V	Viewing	A vantage point which provides a superior view or an area which provides frequent good viewing opportunities.
W	Wetland Wildlife	Land with capability for viewing or hunting of wetland wildlife.
X	Miscellaneous	A feature with recreation capability not adequately covered by any other symbol.
Y	Family Boating	Shoreland adjacent to water suitable for popular forms of family boating activity.
Z	Man-made Features	Areas exhibiting major, permanent, non-urban, man-made structures of recreational interest.

Source: Canada Land Inventory, Department of Regional and Economic Expansion, Report No. 6: Land Capability, Classification for Outdoor Recreation, pp. 9-95.

three clear attractions. There are some areas on the shore of Priest Lake which have been given only one or two subclass symbols because of a lack of attractions.

The ordering of the subclasses depends on the judgment of the surveyor. There is an element of subjectivity present even within the high capability classes, as can be seen in Table 4. One of the criteria for a Class 1 beach is that water temperature is to be comfortable during the season of peak use, but "comfortable" is not defined. Does it mean a water temperature of greater than 65° or 72° or 80° F.? "Aesthetically pleasing" vegetative cover is another criterion for a Class 1 beach: this, too, is not defined.

To assist the reader to recognize the differences between the capability classifications for each subclass, Table 4 has been constructed. Although just the subclass for beaches (B) has been described it should illustrate the differences in the requirements for the capability classes. The beach subclass for capability classes 1, 3 and 5 was chosen because it demonstrates the range in requirements for levels of capability. A Class 1 beach has the most clearly defined criteria; a beach in this class must be outstanding. Less stringent terms apply to Class 3 beaches. A greater range in the criteria allow for more sites to be rated at this capability level. A Class 5 beach has loosely defined criteria; the area needs severe limitations to achieve this level of classification.

All classification and rating is done on maps. Land units are assigned a combination of symbols indicating, in order of significance, (1) their capability class (1 to 7), (2) whether shoreland (S) or upland (U), and (3) up to three subclasses. These symbols can be written horizontally or vertically. An example of symbols for a shoreland unit would be: $2S\overset{B}{\underset{Y}{K}}$ or 2SBKY. This indicates a Class 2 shoreland unit with a bathing beach (B), terrain suited for camping (K) and adjacent water suitable for popular forms of family boating

Table 4

CLI CLASSIFICATION

Criteria	Class 1 (1B) Very High Capability	Class 3 (3B) Moderately High Capability	Class 5 (5B) Moderately Low Capability
1. Lake Size	Area of 6 square miles or 10 miles in length	Can have less than 1 square mile area or 2 miles in length	
2. Water Quality			
- Temperature	Comfortable swimming temperature during season of peak use	Cool or cold water	Cold water -- can preclude use
- Clarity	Clear water	Some weeds, aquatic nuisances	Swamp or marsh area
3. Length of Beach	Approx. 1,000 feet of beach	Up to 300 feet of beach	
4. Sand Quality	Fine grained material	Range of gravel sizes	Sharp, unsorted rocks
5. Developable Area	25 acres	10 acres	Less than 5 acres
6. Slope			
- Offshore	2 to 5 per cent	Could be greater than 8 per cent	Greater than 15 per cent
- Backshore	Generally level to gently sloping	Possible erosion and stability problems	Steep slopes
7. Vegetative Cover	Aesthetically pleasing	Pleasant	Limited
8. Development	Can support major development	Intermediate development	Can support only minor development

Source: Compiled from CLI, Department of Regional and Economic Expansion, Report No. 6: Land Capability, Classification for Outdoor Recreation (Ottawa, 1969), pp. 19-22.

activity (Y). In the above symbolization "K" and "Y" are the subordinate subclasses.[6]

APPLICATION OF LAND INVENTORY TO PRIEST LAKE

The CLI provides an objective basis for assessing the outdoor recreational capability of Priest Lake because it considers neither the present land use nor accessibility but ranks the area strictly on its physical qualities. The Recreation Area Plan for Priest Lake deals with the division of the lakeshore into management zones.[7] These sectors were designated according to accessibility and present land use, not according to capability. Obtaining a recreational study of the lakeshore that is dependent upon physical qualities could provide a basis for changes in management zones according to this capability rather than to the presently used criteria of accessibility and land use.

Field Procedures

The first step in the Priest Lake inventory was a classification from aerial photographs. These were taken during the summers of 1968 and 1969 and were used to determine the beach areas and a preliminary rating of the lakeshore. The entire lakeshore was then checked in detail in the field. The following characteristics were noted: location; length of beach; backshore slope; offshore gradient; type of beach materials; and outstanding qualities or problems. Location was checked on a map of the area and noted on the field sheet (see Appendix A). Beach length was measured by pacing and was recorded in yards. Backshore slope was measured with a simple clinometer. Offshore gradient was measured by depth in feet at 30 feet and 50 feet offshore, using a weighted line marked off in half-foot sections. The distance of 30 feet was chosen because young children usually play safely in water up to a distance of 30 feet from the shoreline. Fifty feet from the shoreline is a good distance at which to swim parallel to the shore. The types of beach materials were noted according to texture, size and quantity for both the wet and dry beaches.

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[6] J. J. Nowicki, *op. cit.*, footnote 1, p. 21.

[7] United States Department of Agriculture, Forest Service, *Priest Lake Recreation Area Plan* (Priest Lake Ranger District, Kaniksu National Forest: June, 1967), 52 pp.

After the field checking was completed, capability ratings were assigned to the separate segments of the shoreline. These have been mapped in large scale sections to preserve their detail.

Subclass Ordering

The CLI study for outdoor recreation capability has not been altered in any way because it was meant to provide an inventory of the area through the use of aerial photo interpretation, field checking and available records. It should be realized, however, that shoreland units with the same ratings will not necessarily have the same qualities. Table 5, showing three different locations with the same classification (3BNY), provides evidence of this fact. The length of beach ranges from 100 yards to 320 yards. Beach materials are varied. Offshore gradients for sites 1 and 2 are quite similar, but site 2 has a substantially steeper backshore. The steepest backshore of all is found at site 3 but it shows no offshore gradient between 30 and 50 feet.

Ordering depends upon the primary capability of the location; the secondary and tertiary subclasses are assigned as the next most prominent capabilities for use. The significance of this can be illustrated by reference to three separate beaches which have been assigned to capability class 3 (Table 6). The subclasses are BNY, YNB, NYB which means that each of the three has the capacity for (in varying degrees) family beach activities (B), family or other recreational lodging use (N), and access to water suitable for

Table 5

COMPARISON OF SITES -- 3BNY

Location	Site 1 Distillery Bay (South)	Site 2 Distillery Bay	Site 3 Tule Bay
Length of Beach	100 yards	320 yards	260 yards
Type of Beach Materials	Beach has grainy sand, rock and clay bottom	Sandy beach, rocky bottom	Rocky shoreline, trees to water level, sand 20 feet from shore
Backshore Slope	18 per cent	26 per cent	30 per cent
Offshore Gradient			
- At 30 Feet	2.8 feet deep	2.5 feet deep	3.0 feet deep
- At 50 Feet	4.0 feet deep	4.5 feet deep	3.0 feet deep

Source: Field Survey

Table 6

CAPABILITY CLASS 3 -- SUB-CLASS ORDERING

Characteristics	Site A: BNY	Site B: YNB	Site C: NYB
Location	East shore -- across from Teacher Bay	Squaw Bay	South end of Priest Lake, end of bay
Length of Beach	100 yards	200 yards	110 yards
Type of Beach Materials	Sand and rock beach, extensive undergrowth, lake bottom rocky here	Smooth beach and bottom, some plant material on bottom	Clay bottom, weeds
Backshore Slope	26 per cent	23 per cent	Flat to negative slope
Offshore Gradient			
- At 30 Feet	2.0 feet deep	10.2 feet deep	Shallow
- At 50 Feet	5.0 feet deep	Drops off	1.5 feet deep

Source: Field Survey

popular forms of family boating (Y).[8]

(i) Site A is rated 3BNY. B is the primary subclass because the shoreland has a gentle, even gradient; sandy and rocky beach materials could support family beach activities. N is in the secondary position because of the steepness of the backshore slope. The slope is too steep for intensive use such as camping and is therefore more suited to lodging (e.g. cottaging). Y is the tertiary subclass because access to the water for boating activities is only fair, again because of steep backslope. Also, conditions for beaching a boat here are not very good because of the rocky bottom and shallow waters.

(ii) Site B is classified 3YNB. The sandy beach and steep offshore gradient make this shore area easily accessible by boat; subclass Y was therefore given priority. N is the secondary subclass because a backshore slope of 23 per cent is too steep for intensive use. The offshore gradient is also important here; it is too steep to be safe for young children (naturally associated with intensive use in camping areas). The capability for supporting family beach activities (B) rates as the tertiary subclass. A smooth sandy beach and bottom are excellent qualities but the steep submarine slope limits family use.

(iii) Site C has a classification of 3NYB. Land suited to family or recreational lodging use (N) is the primary subclass because the backshore has a negative grade from the shoreline and, under intensive use, waste disposal could be a problem. The secondary subclass assigned to this site is Y. Boat access is relatively difficult because of a shallow offshore gradient; long docks would have to be built before boats could be moored. The lake bottom material is soft and full of plant matter and cannot withstand intensive use; for this reason the tertiary subclass is B.

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[8] Canada Land Inventory, *op. cit.*, footnote 2, p. 114.

Evaluation

The maps (Figs. 6 - 6D) and Table 7 give the total capability ratings for the study area. The large scale maps illustrate the site locations and their capability ratings while the table gives totals for the various subclass types for each shoreland capability class. The graphic presentation on the maps is displayed with relative ease; this is a positive feature of the CLI classification.

Table 7 shows the subclass BKY as the most frequent category in Class 1 to Class 4. It is also the subclass which is most suited for intensive use, because of its primary emphasis on family beach activities. There are 244 sites in these four capability classes; 116 of these, or approximately 47 per cent, are classified as BKY. Areas with low capability classifications can not support large numbers of users, so the BKY subclass disappears in capability classes 5 and 6.

Subclass BNY is the second most frequent on Priest Lake (Table 7). It is found in capability classes 2, 3 and 4 where it applies to 44 sites; this is almost 20 per cent of the three classes and 17 per cent of the total sites on the lake. The difference between BNY and BKY is that the area is more suited to family lodging than to camping.

The subclass A, "land providing access to water with natural capability for production, harvesting and/or viewing of sport fish," generally has not been used for the classification.[10] This is because most of the fishing on Priest Lake is done offshore. Angling could take place almost anywhere offshore and certainly does; it is one of the main reasons for tourists coming to Priest Lake.

Use of the subclass C which deals with canoe tripping has also been limited because of the criterion that

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[10] Canada Land Inventory, op. cit., footnote 2, p. 11.

Table 7

OUTDOOR RECREATION CAPABILITY CLASSIFICATIONS FOR PRIEST LAKE

Capability Class 1

	Subclass	No. of Sites
	BKY	16
	BYK	1
Total	2	17

Capability Class 2

	Subclass	No. of Sites
	BKY	44
	BNY	8
	BYN	1
	BVC	1
Total	4	54

Capability Class 3

	Subclass	No. of Sites
	BKY	41
	BNY	27
	BYN	8
	NBY	4
	NYB	3
	BYK	5
	KYB	2
	YNB	2
	KBY	1
	BY	2
	YB	2
Total	11	96

Capability Class 4

	Subclass	No. of Sites
	BKY	15
	BNY	9
	BYN	7
	BYK	4
	YB	7
	YKB	3
	YNB	3
	Y	3
	KYB	4
	RNY	1
	E	1

Table 7 -- Continued

Capability Class 4
(Continued)

	Subclass	No. of Sites
	LA	1
	YA	1
	NYB	6
	NBY	1
	BY	2
	VCB	1
	AYB	1
	AY	1
	NAY	1
	YAB	1
	YBA	1
	YBK	1
	YND	1
	QYW	1
Total	24	77

Capability Class 5

	Subclass	No. of Sites
	Y	4
	AY	4
	YBN	3
	WAY	2
	YAB	2
	YB	3
	W	2
	BYN	1
	HR	1
	VI	1
	DY	1
	DYV	1
	YV	1
	YNB	1
	RA	1
	BYK	1
	YA	1
	NYB	1
	U	1
Total	19	32

Capability Class 6

	Subclass	No. of Sites
	AY	2
	R	1
Total	2	3

Source: Field Survey

LEGEND FOR FIGURES 6-6D
LAND USE AND CANADA LAND INVENTORY RATINGS

SCALE 1:48000 SEPTEMBER 1973

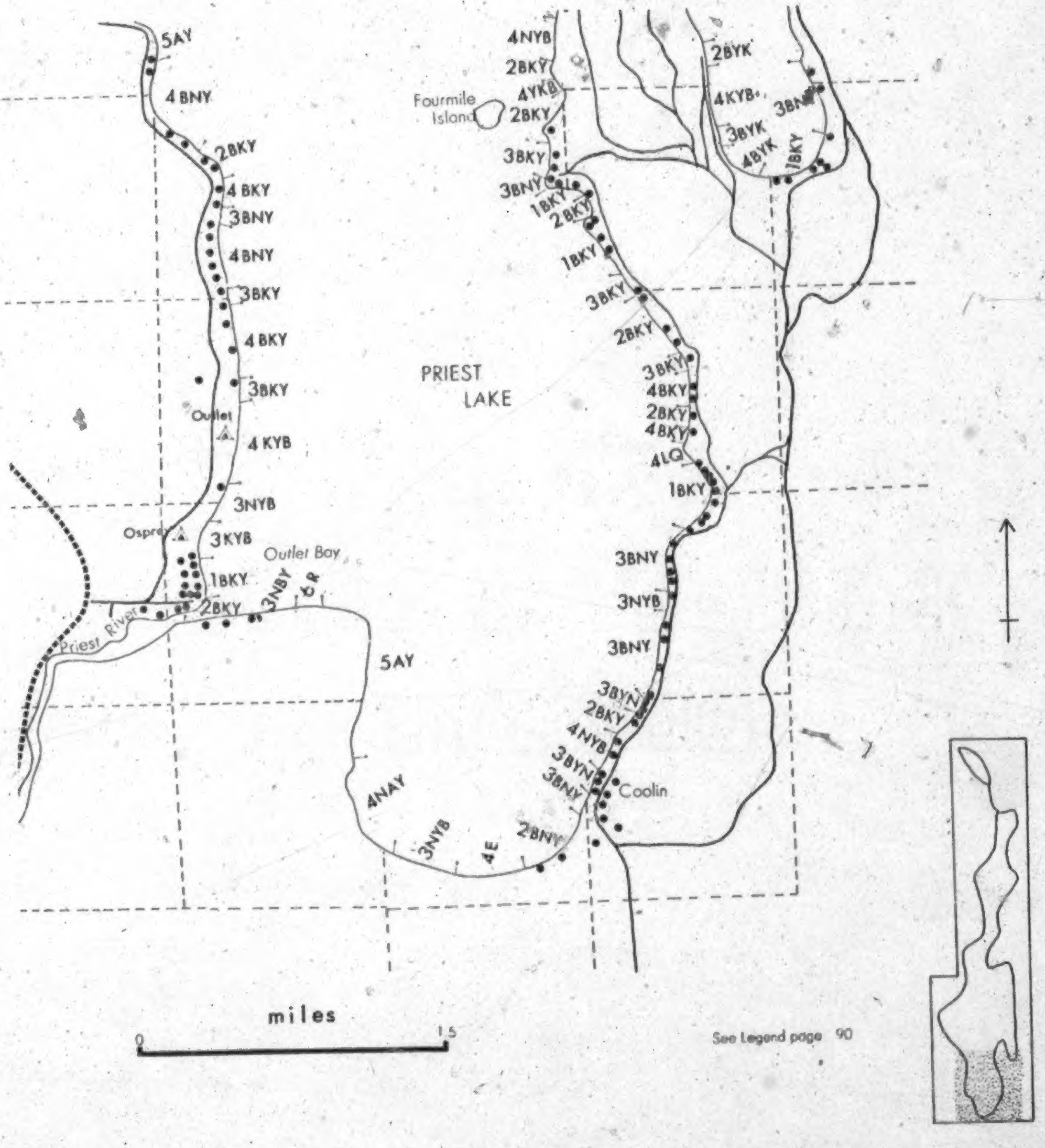
LEGEND

●	4 Cottages
△	Campground
▬ ▬ ▬	Paved highway
—	Improved road

CLI rating-eg. 3 BKY

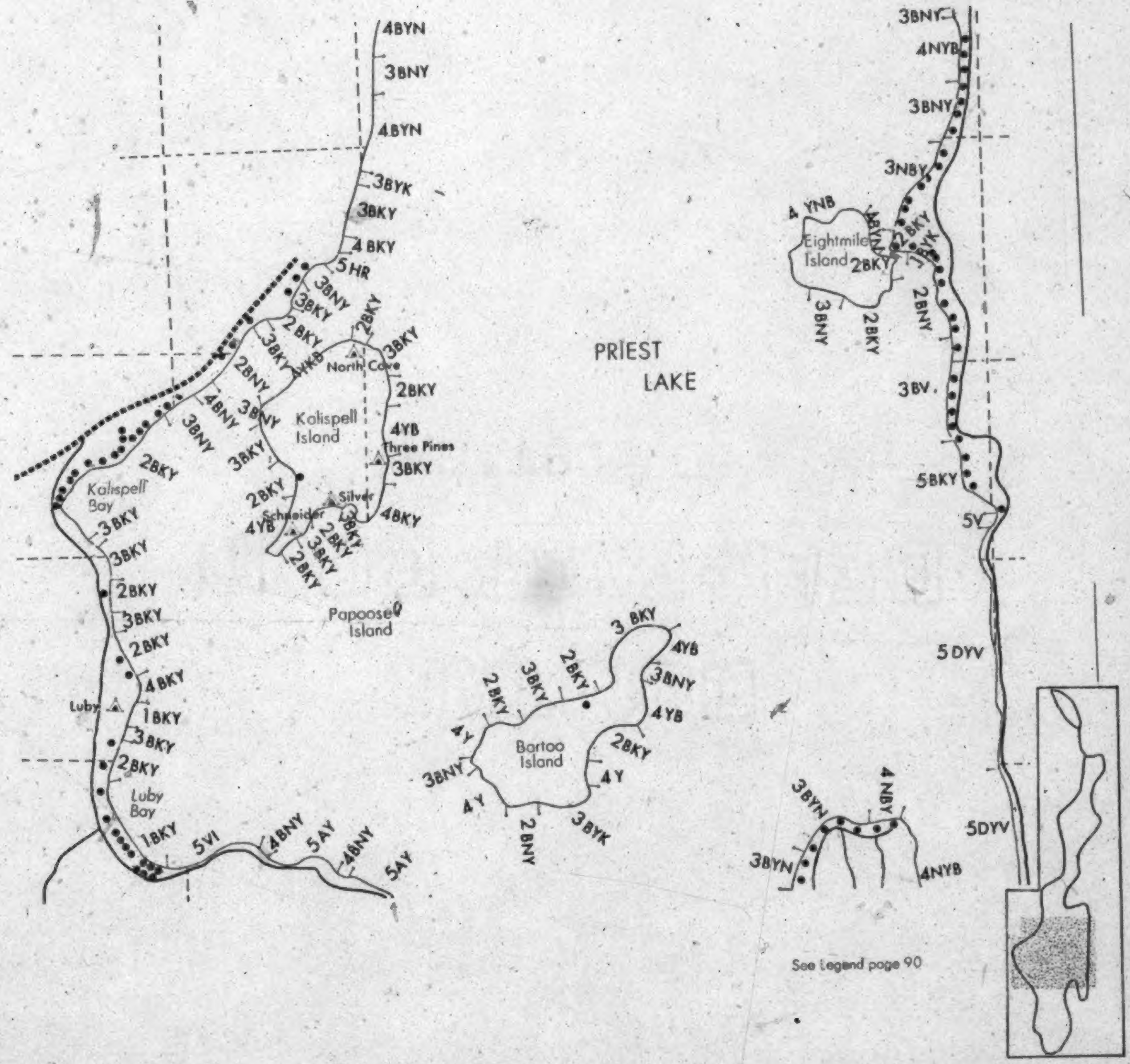
Source: CLI field data
U.S. Geological Survey 1967-1971

Figure 6


5AY
4 BNY
2BKY
4 BKY
3BNY
4BNY
3BKY
4 BKY
3BKY
Outlet
4 KYB
3NYB
Osprey
3 KYB
Outlet Bay
1BKY
2BKY
3NBY
ĈR
Priest River
5AY
4NAY
3NYB
4E
2BNY
4NYB
2BKY
4YKB
Fourmile Island
2BKY
3BKY
3BNY
1BKY
2BKY
1BKY
3BKY
2BKY
3BKY
4BKY
2BKY
4BKY
4LQ
1BKY
3BNY
3NYB
3BNY
3BYN
2BKY
4NYB
3BYN
3BNY
Coolin
2BYK
4KYB
3BN
3BYK
4BYK
1BKY
PRIEST LAKE
miles
0
1.5

See Legend page 90

Figure 6A


PRIEST LAKE
Kalispell Island
Kalispell Bay
North Cove
Three Pines
Silver
Schneider
Papoose Island
Luby
Luby Bay
Bartoo Island
Eightmile Island
4BYN
3BNY
4BYN
3BYK
3BKY
4 BKY
5 HR
3BNY
3BKY
2BKY
2BKY
3BKY
4YKB
2BNY
3BKY
2BKY
4BNY
3BNY
3BNY
4YB
3BKY
3BKY
2BKY
4YB
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3BKY
4BKY
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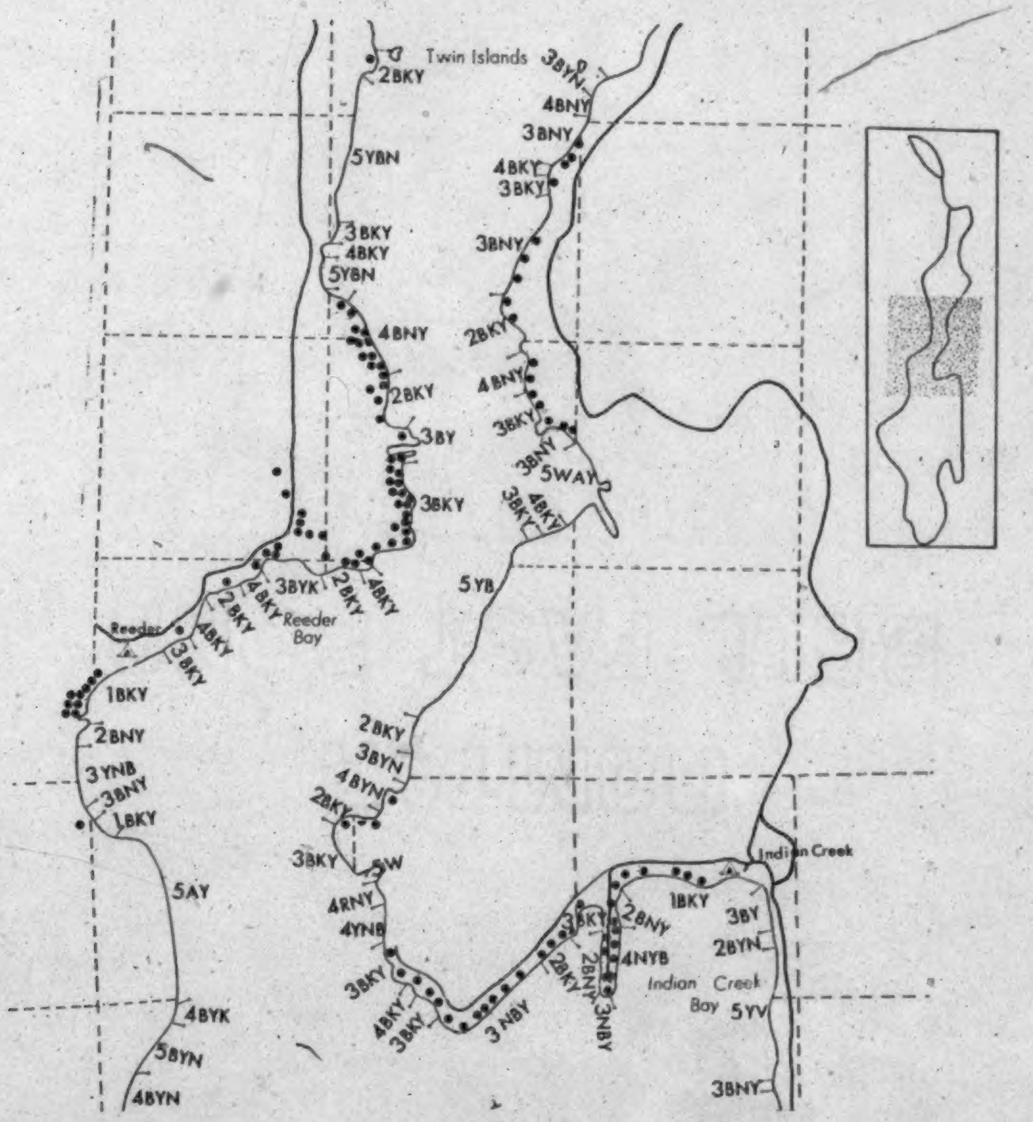
2BKY
3 BKY
3BKY
2BKY
3BKY
2BKY
4 BKY
1BKY
3BKY
2BKY
1BKY
5VI
4BNY
5AY
4BNY
5AY
3 BKY
4YB
3BNY
4YB
2BKY
4 Y
3BYK
2 BNY
4 Y
3BNY
4 Y
2BKY
3BKY
2BKY
3BNY
4NYB
3BNY
3NBY
4 YNB
2BKY
3BNY
2BKY
2BNY
3BV.
5BKY
5V
5 DYV
5DYV
3BYN
4 NBY
3BYN
4NYB

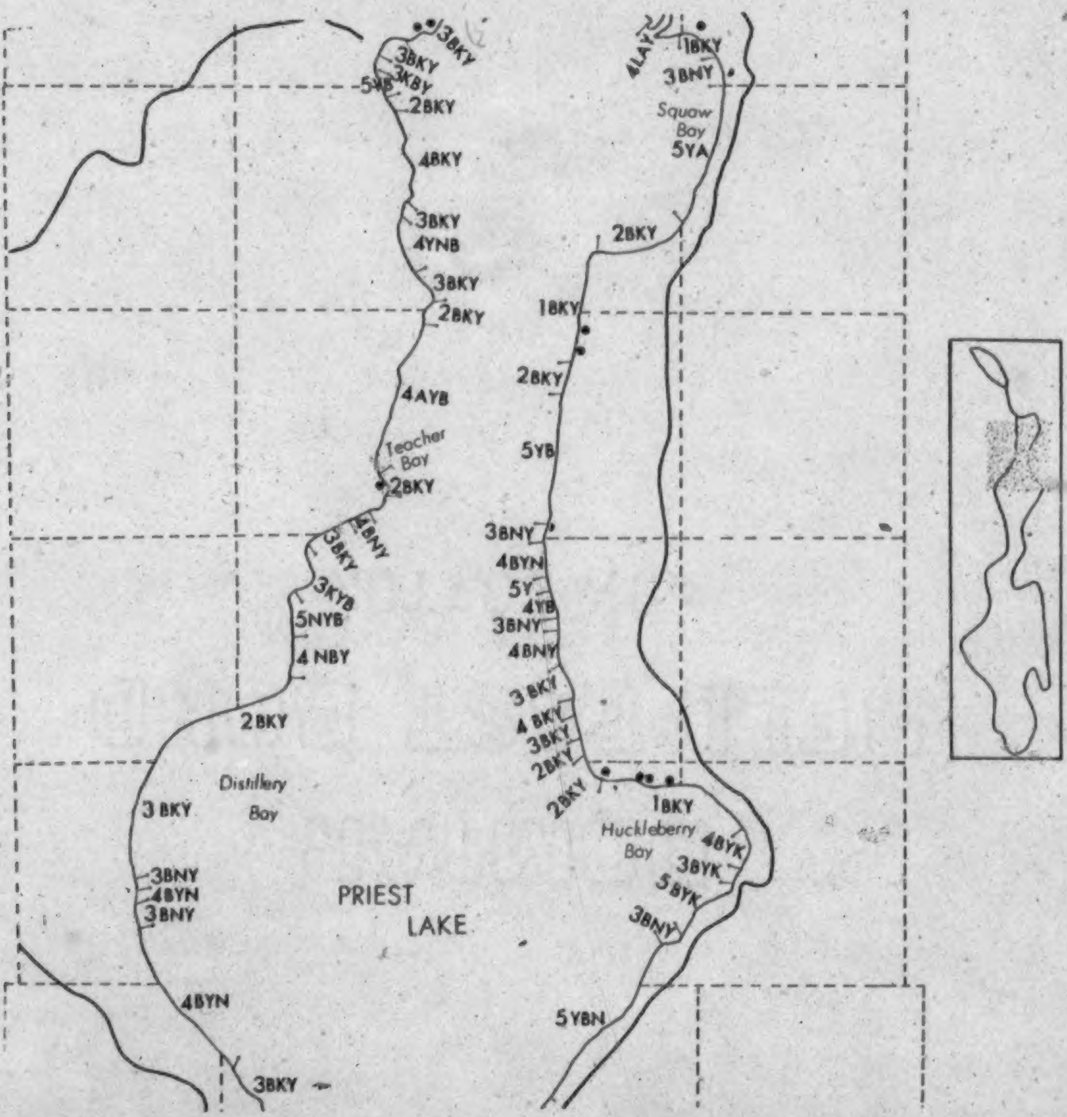
See Legend page 90

Figure 6B


Twin Islands
2BKY
3BYN
4BNY
3BNY
5YBN
4BKY
3BKY
3BKY
4BKY
5YBN
3BNY
4BNY
2BKY
2BKY
4BNY
3BY
3BKY
3BNY
5WAY
3BKY
4BKY
3BKY
3BYK
2BKY
4BKY
4BKY
2BKY
5YB
Reeder
Reeder Bay
4BKY
3BKY
1BKY
2BNY
3YNB
3BNY
1BKY
5AY
2BKY
3BYN
4BYN
2BKY
3BKY
5W
4RNY
4YNB
3BKY
4BKY
3BKY
3NBY
2BKY
2BNY
3NBY
3BKY
2BNY
4NYB
1BKY
Indian Creek
3BY
2BYN
Indian Creek Bay
5YV
3BNY
4BYK
5BYN
4BYN

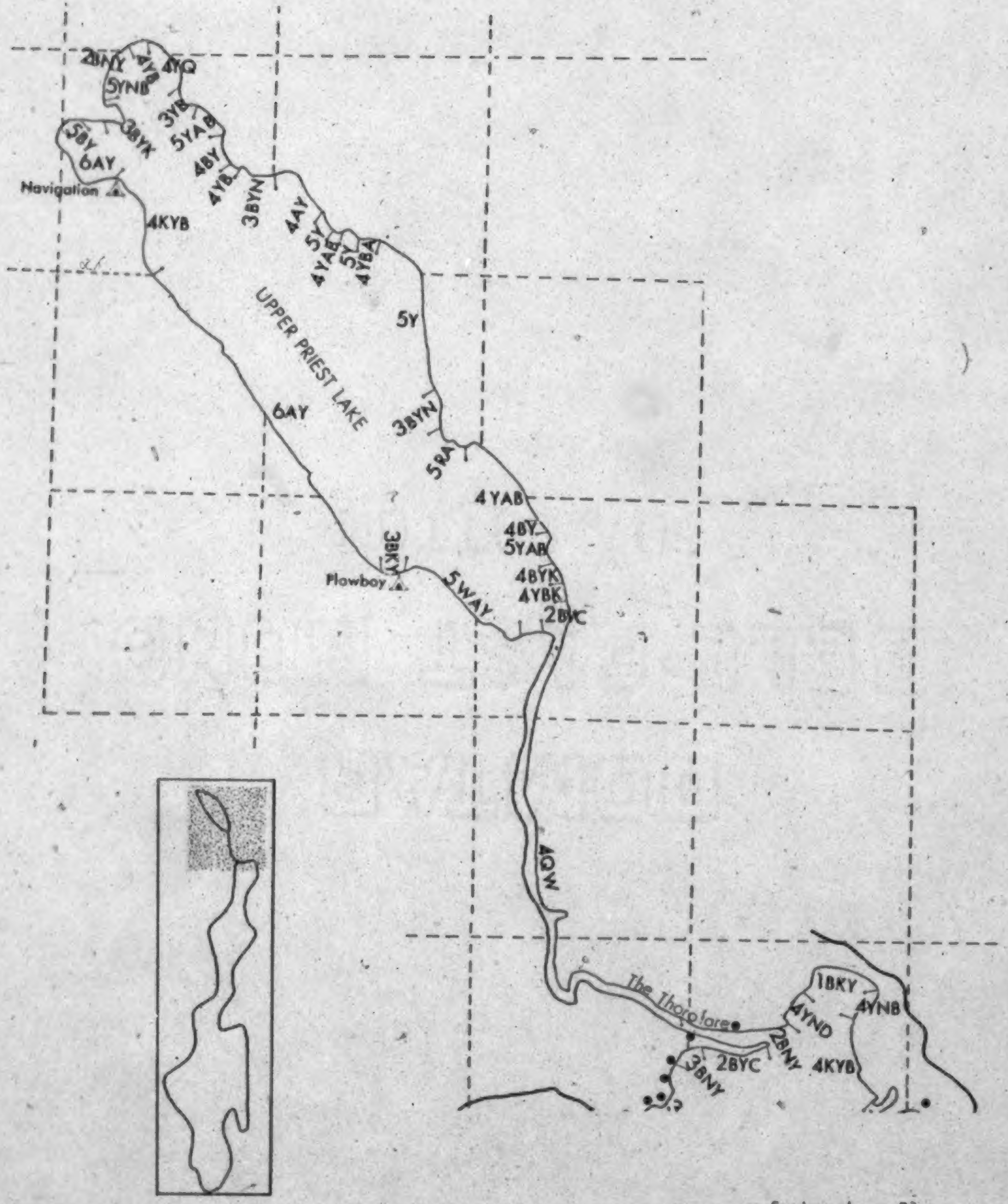
See Legend page 90

Figure 6C


3BKY
3BKY
3KBY
5YB
2BKY
4BKY
3BKY
4YNB
3BKY
2BKY
4AYB
Teacher Bay
2BKY
4BNY
3BKY
3KYB
5NYB
4 NBY
2BKY
Distillery Bay
3 BKY
3BNY
4BYN
3BNY
PRIEST LAKE
4BYN
3BKY
4LAY
1BKY
3BNY
Squaw Bay
5YA
2BKY
1BKY
2BKY
5YB
3BNY
4BYN
5Y
4YB
3BNY
4BNY
3 BKY
4 BKY
3BKY
2BKY
2BKY
1BKY
Huckleberry Bay
4BYK
3BYK
5BYK
3BNY
5YBN

See Legend page 90

Figure 6D


2BNY
4YB
4YQ
5YNB
3YB
5YAB
5BY
3BYK
6AY
Navigation
4BY
4YB
3BYN
4KYB
4AY
5Y
4YAB
5Y
4YBA
5Y
UPPER PRIEST LAKE
6AY
3BYN
5RA
4YAB
4BY
5YAB
3BKY
Plowboy
5WAY
4BYK
4YBK
2BYC
4QW
The Thorofare
1BKY
4YNB
4YND
2BNY
2BYC
3BNY
4KYB

See Legend page 93

a variation in water course is important.[11] While width, current and gradient are not factors on the lakes, there is a definite variation in the shore and backshore along the lake, and scenic terrain abounds. The whole lake could be used for canoe tripping.

Notable Lakeshore Units

The following photographs illustrate some of the capability classes and subclasses found on Priest Lake.

(i) Capability Class 1:

There are 17 land units that rate capability Class 1 on Priest Lake; all of these have a beach as the primary subclass. This is a large number of outstanding beaches for one area and demonstrates one reason for the popularity of the lake as a recreational area. These beaches are accessible by road and all but three of them are located south of the Twin Islands.

There are photographs of three of the characteristic Class 1 beaches on the lake. One outstanding beach is Indian Creek State Park, the Class 1BKY in Plate 1. The photograph shows the long stretch of sand and developable backshore indicative of Class 1. The grainy sand beach extends for 520 yards along the shoreline. The dry beach averages 15 yards in width but it extends to a maximum of 50 yards. The lake bottom is sandy; and the offshore gradient is gentle. At 30 feet from shore the water is 1.5 feet deep and at 50 feet it is 3.0 feet deep. About 125 feet offshore the lake bottom drops rapidly. The backshore slope is about six per cent and there is little ground cover in this area. This is the most heavily used beach on the lakeshore. A roped-off swimming area is evident in the photograph.

Elkins Resort and Reeder Bay Campground share the 1BKY shoreline shown in Plate 2. This beach on the west

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[11] Canada Land Inventory, op. cit., footnote 2, p.

Plate 1. Indian Creek State Park, 1BKY

Plate 2. The 1BKY site in Reeder Bay looking to the north-east.

shore of the lake is 790 yards long. The beach materials are fine sands and flat stones. A steep backshore gradient is located immediately behind the dry beach area but this levels off about 50 yards from the shoreline, making the area good for camping (K) although some bank erosion occurs. The water is about 3.0 feet deep 30 feet from the shore and 4.2 feet deep 50 feet offshore, which provides easy access for boating (Y). The roped-off area at the north end of the beach is the Reeder swimming area. There is more ground cover here than at Indian Creek and the pines and fir offer more screening back from the lakeshore.

Plate 3 shows a 1BKY site in Squaw Bay, located partially on State land and partially on land belonging to Diamond International. The beach is 400 yards in length. There is a 15 yard width of dry beach composed of very fine sand with some grasses growing on it. The backshore slope is slight and the area would be a good one for use as a campground (K). As most of the beach belongs to Diamond International, it receives little intensive use. Access to the area is by the poorly maintained east shore road or by boat. The site has the capability to support family boating (Y); the water is 2.5 feet deep at 30 feet offshore and 4.0 feet deep 50 feet offshore. There is some plant material on the lake bottom.

(ii) Capability Class 2:

The 54 Class 2 sites have beaches as the primary subclass. Eighty per cent of these sites have camping as the secondary subclass. These sites have a high capability for outdoor recreation and more than half of them are accessible by road. The west shore has more inaccessible sites than does the east shore. About one-quarter of the sites are not in use at the present time and these are located north of the Twin Islands.

BKY is the most common type of Class 2 beach. The example which is shown here is North Cove Campground on

Plate 3. Squaw Bay on the east shore, 1BKY.

Plate 4. North Cove Campground on Kalispell Island, 2BKY.

Kalispell Island (Plate 4). The beach is almost 180 yards long with slightly grainy materials. The lake bottom is sandy here. The backshore slope is less than ten per cent which makes it suitable for camping (K). This area faces north-west and receives the afternoon sun. Deep water near the shoreline encourages water skiiers to camp here; it also makes boat landings easier, hence the subclass (Y), family boating. At 30 feet offshore the water is 4.8 feet deep and at 50 feet it is 5.8 feet deep.

The Class 2BNY site in Plate 5 is located at the south end of the lake, west of Coolin. It is 300 yards long, and has a good beach (B) with smooth sand. Little natural foliage grows along the shoreline. The backslope is level and contributes to the second subclass, lodging (N). The lake bottom is firm and has some plant material on it. Thirty feet from shore the water is two feet deep, but it increases to a depth of only 2.9 feet at 50 feet offshore. The cottages in this area are privately owned and some of them are permanent residences.

West of Linger Longer Resort in Kalispell Bay is another 2BNY site (Plate 6). This beach is located in an area of private ownership. One hundred and twenty yards of smooth, fine-grained beach materials is the reason for the subclass B. The backslope of 28 per cent has been visually decreased by terracing. At 30 feet offshore the water is 2.5 feet deep and at 50 feet offshore it is 4.0 feet deep; this increases the capability for family boating because boats can get quite close to the shore before "cutting" their motors.

(iii) Capability Class 3:

The largest number of sites in a capability class at Priest Lake is in Class 3. There are 96 Class 3 sites and 83 of them have beaches as the primary subclass. Two-thirds of the sites are accessible by road. Both the east l

Plate 5. A 2BNY site on the south end of the lake, west of Coolin.

Plate 6. Kalispell Bay, a 2BNY site located west of the Linger Longer Resort.

and the west shores have 11 sites accessible only by boat. Some of these as well as some of the road access sites have beach areas overgrown with alders.

Tripod Point on the west side of the lake is a characteristic example of a 3BKY site (Plate 7). The beach is 115 yards in length and is very rocky. The dry beach extends for five yards. The backslope is 14 per cent so the area has the capability for camping use (K). The lake bottom is rocky here and the water is 3.0 feet deep at 30 feet offshore. At 50 feet offshore it is 4.9 feet deep; it becomes sandy about this distance from the shoreline. There is no road into this area. Access has been solely from the water but the Beaver Creek highway may make access by land more feasible.

The second example of a Class 3 site is also a BKY and is located at the south-west end of the Beaver Creek Camp Association tract (Plate 8). The area is about 180 yards long. Most of this site has no beach, and grasses and alders are growing down to the shoreline. As the land is classified according to its natural capability, the rating of the area does not drop if a beach is overgrown with alders that must be cleared before it can be used. This is because the system rates the capability for future use, not the present physical state of the area. There are small pebbles and rocks on the lake bottom here. The backslope is only ten per cent and could provide a gentle gradient for camping (K). The area has quite shallow offshore gradients; at 30 feet the water is 1.5 feet deep and at 50 feet the water is 3.0 feet deep. For this reason, as well as the rocky bottom, family boating (Y) is the tertiary subclass.

Plate 9 shows a 3BNY site located south of Tule Bay on National Forest land. The site is 260 yards long with a rocky shore, little sand, and alders down to the water's edge. There are rocks as far as 20 feet from the shoreline and then the bottom becomes sandy. The backshore

Plate 7. An example of a 3BKY site, Tripod Point on the west side of the lake.

Plate 8. 3BKY at the south-west end of the Beaver Creek Camp Association Tract.

Plate 9. A 3BNY site located south of Tule Bay on the west shore of the lake.

Plate 10. The west side of the lake south of Luby Bay, 4BNY.

Plate 11. North of East Twin Island on Diamond International's land, a 4BYN site.

Plate 12. The only beach on Fourmile Island, 4NYB.

slope is about 30 per cent which is too steep for camping purposes so the subclass for lodging (N) was assigned. Family boating (Y) was given third priority because the increase in water depth does not occur soon enough. At both 30 feet and 50 feet offshore the depth is 3.0 feet. The rocky bottom along shore makes beaching a boat more difficult than if the bottom was sandy.

(iv) Capability Class 4:

Class 4 sites have a moderate capability for use and can sustain this use based on dispersed activites. There are 77 of these sites on the lake and less than half have a beach for the primary subclass. Almost 40 per cent of the total sites in this class are not accessible by road. Forty-seven of the sites are not in use at the present time.

Although BKY is the most common type of Class 4 beach, there are no photographs of any of this type. The second most common type is a BNY, an example of which is located on the west side of the lake south of Luby Bay (Plate 10). The beach is very overgrown with cottonwoods and alders; the boat docks provide the only sitting space along the water's edge. The backslope is too steep for camping, and cottaging (N) is the more appropriate subclass. The offshore gradient is quite steep and family boating (Y) can be carried out here.

The 4BYN site in Plate 11 is located north of East Twin Island on the east shore of the lake. The land belongs to Diamond International. The beach (B) is about 120 yards long and is composed of rough, grainy materials. The dry beach is about three yards wide. The capability for family boating (Y) is evidenced by the steep offshore gradient, dropping from 2.6 feet of water 30 feet from the shoreline to 7.8 feet at 50 feet offshore. The area has a very steep backslope, about 35 per cent, for a short distance and then levels off which makes it more capable of supporting cottaging (N) than camping. The steep backslope, sharp offshore gradient, and grainy, narrow dry beach are all factors that contribute to a capability Class 4 rating.

The final example of a Class 4 site is on the northwest corner of Fourmile Island. The land is under the jurisdiction of the National Forest. The entire island is rated as 4NYB although there is only one small beach (Plate 12). The offshore gradient is steep and not good for swimming. Alders are growing along the shoreline. Backslope dictates that cottaging rather than camping be carried out here. Cottaging or lodging (N) was given the first subclass rating because of the unsuitability for bathing and the steep backslope. Family boating was assigned as the secondary subclass for this site. The backslope is too steep for camping, and cottaging (N) is the more appropriate subclass. The offshore gradient is quite steep and family boating (Y) can be carried out here. The tertiary subclass, family beach activities (B), has been assigned because the activities can be confined to dry land in Class 4.

(v) Capability Class 5:

Class 5 sites have a moderately low capability for outdoor recreation and can not withstand much use. There are 32 of these sites along the lakeshore. Three-quarters of them are accessible by boat only. Nine of these sites are located in the Upper Lake.

There are various types of sites within capability Class 5; nothing is clearly dominant. The examples given here were chosen to illustrate the variation. Site 5A is located south of Woodrat Mine on the western shore of the lake (Plate 13). Both the offshore and backshore gradients are very steep. Bedrock outcrops at the water level. There is absolutely no beach, and firs and alders are growing down to the water's edge. The lack of a beach limits capability greatly, even for boating. The steepness of slope and the

Plate 13. A 5A site, south of Woodrat Mine.

Plate 14. The Kaniksu Batholith in the Upper Lake, 5RA.

bedrock outcrop rules out building on this land. Capability for angling (A) is high here.

A site on the Upper Lake rates a 5RA classification (Plate 14). The interesting rock formation (R) is the Kaniksu Batholith which outcrops here. There is no beach in the area and the slopes, both offshore and backshore, are very steep. The capability for angling (A) is good.

A Class 5 site along the east shore is rated as 5DVY (Plate 15). The area has a very steep backslope, and an uneven gradient which is very steep. The deepest part of the lake is not far from this shoreline. Deeper inshore water (D) has been assigned as the primary subclass. This is a vantage area (V) which offers a corridor view in both a southerly and a northerly direction. Family boating is the tertiary subclass. The east shore parallels the shoreline very close to the water.

(vi) The Thorofare:

The entire channel of the Thorofare has been rated as 4QW (Plate 16). Subclass Q, areas exhibiting variety, has been assigned because the Thorofare offers a change in scenery from the lakes which it links. The lush growth along the channel enhances the aesthetic qualities of the Thorofare. Animals come down to the water to drink and feed so that the subclass W, to describe the opportunity for viewing wildlife, is a suitable addition.

At the outlet of the Upper Priest Lake into the Thorofare, an area of National Forest land on the north side of the lake has a rating of 2BVC (Plate 17). The beach is about 100 yards long and is composed of very fine sands. Some grasses are growing on the beach. The site offers a superior vantage point for a view of the Upper Lake and, for that reason, subclass V has been assigned. This site also fronts onto a waterway with capability for canoe tripping (C). The Thorofare lacks variation in water speed but its

Plate 15. A 5DVY site along the east shore road near Cavanaugh Bay.

Plate 16. A portion of the Thorofare, the entire channel of which has been rated 4QW.

Plate 17. 2BVC, at the outlet of the Upper Priest Lake into the Thorofare.

Plate 18. Elkins Resort and Marina in Reeder Bay

scenic qualities make up for this.

CLI LAND UNITS -- SUMMARY FOR EVALUATION

The Priest Lake inventory has identified more sites in the middle capability classes than in the highest and lowest classes. This indicates that while most of the lakeshore is suitable for some form of recreational use, not all of it can absorb intensive development. Tables indicating use patterns and ownership have been developed for the first four capability classes (Tables 8-11). At the least, these areas can withstand moderately intensive use and can be considered for future public development, while Classes 5 and 6 can withstand only low total annual use and are not often considered for future public development. There are 279 sites in the study area as defined by the CLI classification; 244 of these sites, or about 87 per cent, belong to capability Classes 1, 2, 3, and 4. Stringent criteria limit the number of Class 1 and 2 sites, but as the middle capability classes are reached the number of sites increases due to more liberal guidelines.

The tables list "present public use" as one of the headings for the various sites. This term does not indicate level of public use; it could mean that the area is at present developed as a campground, or that it is used occasionally as a picnic site. Some high capability units, now in use, could be used more intensively. This point will be treated in detail later.

As indicated in Table 8, there are 17 Class 1 sites on the lake and all of them are in use. Eight of the sites are privately used at present, but half of them are owned by either the state or federal governments. A question for future consideration is whether any of these sites have potential for public use.

Class 2 sites number 54; 39 of them are in use and 15 (about 28 per cent) are not used. Thirteen of the 15 unused sites are under the jurisdiction of either the Forest

Table 8

CLI LAND UNITS IN CAPABILITY CLASS 1

Sites	Ownership						Totals
	NFS	State	Small Holdings	Diamond International	State/Small Holdings	State/ Diamond	
Present Public Use	2	2	2[1]	1	0	2	9
Present Private Use	1	3	3	0	1	0	8
Total in Use	3	5	5	1	1	2	17
Total Not Used	0	0	0	0	0	0	0

[1] There are resorts in two of these areas; the public are entitled to use sections of these sites.

Source: Field Survey

Table 9

CLI LAND UNITS IN CAPABILITY CLASS 2

Sites	Ownership						Totals
	NFS	State	Small Holdings	Diamond International	State/Small Holdings	Coolin	
Present Public Use	8	0	0	0	0	0	8
Present Private Use	9	8	11	1	1	1	31
Total in Use	17	8	11	1	1	1	39
Total Not Used	6	7	0	2	0	0	15

Source: Field Survey

Service or the State of Idaho. Class 2 sites have a high capability for outdoor recreation, and development of those that are now unused, as well as more intensive use of the lightly used ones, could ease the stress of overcrowding at other Class 1 and 2 areas now in use.

Class 3 has the largest number of sites, 96. Thirty-three of these units, about 35 per cent, are not in use at present. The Forest Service has 21 of the 33 sites on its lands and the State of Idaho has 5 sites under its jurisdiction (Table 10). Together, the two levels of government control 89.5 per cent of the unused sites. These units can potentially support recreational use of an intensive or moderately intensive nature. Twenty-five of the Class 3 sites are located north of the Twin Islands along the less developed shoreline areas.

Class 4 units have moderate capability for outdoor recreation. There are 77 of these units, of which 43 are presently not used; 34 of the 43 sites, or about 80 per cent, come under the jurisdiction of either the Forest Service or the State (Table 11). This capability class is the only one of the four discussed that has more unused than used sites. This indicates their greater physical limitations and lower popularity for recreational purposes.

The land use tables raise many questions about the development potential of higher capability units for public and private use. Is public use development likely on a Class 1 or Class 2 beach which is presently in cottage use? Will future demands for space cause either the state or federal governments to revoke leasing privileges in some locations and turn the land over to public use? Is the development of Class 4 sites for public use worthwhile if they can withstand only moderately intensive use? Does an area's high potential for use mean that it should be developed? In what ways can more sites be developed while still retaining the beauty of the lakeshore and the quality

Table 10

CLI LAND UNITS IN CAPABILITY CLASS 3

Sites	Ownership								Totals
	NFS	State	Small Holdings	Diamond Inter-National	NFS/ Small Holdings	State/ Small Holdings	State/ Diamond	Coolin	
Present Public Use	7	5	0	0	0	0	0	0	12
Present Private Use	10	15	17	4	2	1	1	2	51
Total in Use	17	20	17	3	2	1	1	2	63
Total Not Used	21	5	2	5	0	0	0	0	33

Source: Field Survey

Table 11

CLI LAND UNITS IN CAPABILITY CLASS 4

Sites	Ownership							
	NFS	State	Small Holdings	Diamond International	NFS/ State	State/Small Holdings	Coolin	Totals
Present Public Use	8	3	1	0	2	0	0	14
Present Private Use	6	6	5	1	0	1	1	20
Total in Use	14	9	6	1	2	1	1	34
Total Not Used	24	10	1	6	0	2	0	43

Source: Field Survey

of the recreational experience? Should the governments supply recreation sites on demand or should they operate on the principle that crowding will lessen the recreation experience and thereby reduce the demand over a period of time? Would it be possible to rotate the use of recreational sites so as to give the vegetation in these areas a chance for regrowth? These questions will be returned to in Chapter VI.

CHAPTER V

CAMPER AND COTTAGER SURVEYS

To establish those physical characteristics of the lakeshore which were considered attractive by the people using Priest Lake, as well as to provide information on government influence, familiarity and use of the area, and use of the lakeshore; camper and cottager surveys were carried out. They were intended to provide guidelines for future planning, through consideration of the desires of the users. When coupled with the physical capability of the lakeshore, as determined in Chapter IV, they can provide much information for management planning.

The questionnaires were originally designed in a format that used both open and closed questions. The majority of the questions are to secure "the advantage of obtaining spontaneous replies, free and in the respondents' own words."[1] Open questions also have disadvantages though, an important one being the risk of introducing bias through the interviewer's probing for an answer. Oppenheim reminds us that open questions are "often easy to ask, difficult to answer, and more difficult to analyze."[2] "Closed questions are faster and easier to answer. . .and quantification is simple. . .but there is a loss of spontaneity and a possible introduction of bias by offering alternatives which the respondent would not have thought of for himself."[3] Clearly then, there are advantages and disadvantages to both techniques, which seemed like a good reason for testing both in the field.

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[1] T. L. Burton and G. E. Cherry, Social Research Techniques for Planners, (London: George Allen and Unwin, 1970), p. 57.

[2] A. N. Oppenheim, Questionnaire Design and Attitude Measurement (New York: Basic Books Inc., 1966), p. 41.

[3] Burton and Cherry, op. cit., footnote 1, p. 57.

The pilot survey, carried out in the study area, showed that the respondents did not limit themselves to the choice of alternatives listed in the closed questions but introduced new responses. Because of this positive response, these questions were modified slightly to become open-ended questions. Later, it was realized that some of the responses were difficult to interpret, as Oppenheim warned, but these will be dealt with separately in the following discussion.

The cottager and camper surveys will be considered independently. As a conclusion to the chapter, their results will be summarized and compared.

The statistics included here will be quite simple because of the small sample size and because the questions do not lend themselves to the calculation of correlation coefficients or other more sophisticated forms of analysis. Visual analysis of the data to establish relationships has been carried out.

COTTAGER SURVEY

Basic Methodology

The cottager survey concerns only the leased lots on the lakeshore; private holdings were excluded because of the unlikelihood of them ever becoming available for public use. There are 507 leased cottage lots on Priest Lake; 137 are federal lots and 370 are State of Idaho lots according to government statistics.

Originally, the sample was stratified on the basis of assessed value of improvements, in the expectation that this would show some association with cottager attitudes and behavior. A classification of value groupings was devised and a 20 per cent sample of the cottages was drawn from each group. A mail survey was sent out in October, 1972. In order that the responses could be identified by their assessment group, lot numbers were typed on the stamped envelopes to be used for the return of the questionnaires. Unfortunately not all the respondents used these envelopes and complete identification was not possible. There was a return of just under 50 per cent of the questionnaires, or a sample size of slightly less than ten per cent of the leased cottages (48 cottages).

Because of the small number of returns and lack of lot identification for some responses, the assessed value stratification was dismissed as a valid approach to analysis. However, it was still possible, in most cases, to know whether the responses were from state or federal lease-holders. This stratification has therefore been retained.

Various types of cross-tabulations were carried out but they were largely dismissed because they were not instructive. In one or two situations, interesting differences have arisen and these will be introduced into the text at the appropriate times.

Analysis of Data

In aggregate, 64.6 per cent of the returns were from state leased lots, 27.1 per cent were from federal lots, and 8.3 per cent were not identified. This is a fairly accurate representation because almost 73 per cent of the leased lots on the lake belong to the State of Idaho and 27 per cent belong to the National Forest Service.

Table 12 gives a breakdown of the place of permanent residence of the lease-holders on the lake. The dominance of the city of Spokane is very clear.

The completed cottager questionnaire provides information on the following general topics: (i) familiarity with, and use of the area, (ii) location factors and governmental controls, (iii) desired physical site characteristics, and (iv) use of the lakeshore (Appendix B).

(i) Familiarity with and use of the area concerns the number of years the respondent has been coming to Priest Lake, years of cottage ownership on the lake, familiarity with the area before building or buying, and time spent at the cottage during the summer months.

Table 12

PERMANENT RESIDENCE OF COTTAGE OWNERS

Area	Number Leased			
	Federal	State	Totals	Per Cent
Spokane	88	232	320	63.1
Washington (except Spokane)	28	72	100	19.8
Idaho	11	37	48	9.4
California	5	9	14	2.8
Others	5	20	25	4.9
TOTALS	137	370	507	100.0

Q1. How long have you been coming to the Priest Lake area?
Q2. For how many of these years have you owned a cottage on Priest Lake?
Q3. Were you familiar with the Priest Lake area before buying or building a cottage here?

Cottagers in the sample have been coming to the area for an average of 26.2 years. The range was from three to 60 years, and the median was 22.5 years. Average period of ownership was 15.9 years. The distribution by five-year periods is shown in Table 13. Almost seven-tenths, 68.7 per cent, of the cottagers have owned their cottages for more than five years and for less than 20 years. The largest group (25 per cent) have owned their cottages between 11 and 15 years. Thirty-one per cent of cottagers under state jurisdiction have owned cottages for less than ten years while this applies to 15.4 per cent of federal cottage owners. Familiarity with the Priest Lake area before buying or building a cottage was claimed by 85.4 per cent of the sample.

Table 13

OWNERSHIP OF COTTAGES

Years Owned		Per Cent of Sample
0 - 5		6.2
6 - 10		22.9
11 - 15		25.0
16 - 20		20.8
21 - 25		10.4
26 - 30		8.3
31 - 35		2.1
36 - 40		2.1
No Response		2.1
	Total	100.0

Q4. How many days a week do you spend at your cottage during the summer (from June 1 to September 1)?

The working of this question caused some problems as some of the respondents answered in weeks per summer instead of days per week. For purposes of this survey, summer was defined as the thirteen weeks from June 1 to September 1, and the answers were converted into days per week. Table 14, therefore, shows "average days per week," which accounts for some of the odd values. Cottagers spent from less than one day per week to seven days per week at their summer homes. The average was about 3.87 days per week or seven weeks at the lake during the summer. Almost 52 per cent of cottagers with state leases spend between two and three days per week at the cottage while only 15 per cent of federal lease-holders spend this amount of time at their cottages. Twenty-two per cent of federal lease-holders spend less than two days a week at their cottages while only 6.9 per cent of cottagers on state lots do this. Those people spending the entire 13 weeks at the lake represent about one-fifth of the sample and both groups of lessees reported almost the same percentage of cottagers in this category. This large number spending the entire summer at the lake is perhaps unusual but, since 63 per cent of the cottage owners live in Spokane and another tenth live somewhere in Idaho, it would not be difficult for many families to remain at the lake while the working member commuted on weekends, bringing groceries and other supplies.

Table 14

TIME SPENT AT COTTAGE DURING SUMMER

Average Days Per Week		Per Cent of Sample
0.50		6.2
1.00		2.1
1.35		2.1
2.00		14.6
2.96		14.6
3.00		14.6
3.77		2.1
4.00		4.2
4.85		8.3
5.00		8.3
6.00		4.2
7.00		18.8
	Total	100.0

(ii) The second group of questions was concerned with location factors and governmental controls.

Q5. Is your cottage site leased on a term permit or renewed on a yearly basis?

The responses to this question show that 81.3 per cent of the cottagers have leases on term permits; of these, 66.6 per cent are State of Idaho leases and 23.0 per cent are federal leases. Government affiliation is unknown for 10.4 per cent. Those who must renew their leases yearly represent 18.7 per cent of the sample.

Q6. If it is leased on a term permit, how many years was the original lease? How many years are remaining on the lease?

The answers were grouped into the following categories: 0-9 years, 10-19 years, 20-29 years, and 90-99 years. There was no record of an original lease being given between the period of 29 and 90 years. Original leases between ten and 19 years accounted for 52.1 per cent of the sample. The second largest group, which applied to one-quarter of the sample, was for leases between 90 and 99 years. The average length of lease remaining was 16.8 years; the minimum was three years and the maximum 91 years. Of those cottagers who stated how many years were remaining on their leases, 37.5 per cent had eight years until their leases expired. Seventy per cent of the cottagers have leases that will expire or require renewal within six to nine years (See Table 15).

Table 15

REMAINING YEARS ON LEASE AND ORIGINAL LEASE

Years Remaining on Lease	Number of Years of the Original Lease			
	0-9	10-19	20-29	90-99
3	1	-	-	-
4	1	-	-	-
5	1	3	-	-
6	-	2	-	-
7	1	2	-	-
8	-	9	-	-
9	-	3	-	-
10	-	1	-	-
66	-	-	-	1
69	-	-	-	1
85	-	-	-	1
91	-	-	-	1
Number of Total Responses	4	20	0	4
Per Cent of Total Response	14.3	71.4	-	14.3
Number of Non Responses-- 20				

Q7. Did the government controls regarding lease permits influence your location? Why or why not?

This question was asked because of the variability of government controls. It was determined that 29.2 per cent of the sample were influenced by governmental controls while choosing lots, 66.7 per cent were not, and 4.2 per cent gave no response. Of the 14 cottagers who were influenced by governmental controls, eight had state-lease lots, four had federal-lease lots and two did not state their affiliation. In Table 16 it can be seen that there is almost no difference between the percentage of state and federal lessees who were influenced in choosing lot locations by governmental controls.

The second part of the question asked "why or why not." Just over two-fifths of the sample answered this question. There were eight answers given for this question; only those three answers that were given by more than one cottager will be mentioned here. Those that desired strict governmental controls represented 10.4 per cent of the total sample, 8.3 per cent of the total sample would have located on the lake regardless of the controls and 6.2 per cent located because of a government draw for lots.

Table 16

GOVERNMENT CONTROLS AND LOT LOCATION

Governing Bodies	Actual Leased Lots	Per Cent of Sample Influenced by Governmental Controls	Per Cent of Sample -- No Government Influence
State of Idaho	73	29.6	70.4
National Forest Service	27	30.8	69.2
Affiliation Unknown	0	--	--

Q8. Why did you purchase the lease for the lot you now have?

In answer to this question, 41.7 per cent replied that it was one of the few available at a satisfactory location; 55.6 per cent of this group leases from the state while 44.4 per cent have federal leases. Other reasons were also given: 8.3 per cent mentioned the beauty, size and cleanliness of Priest Lake; 8.3 per cent purchased the lease from a friend or relative; and 10.4 said that the location and price were right.

Q9. Why did you locate at this site?

The answers to this question regarding location were similar to those about purchase of a lease (Table 17).

Table 17

SITE LOCATION FACTORS

Reasons	Per Cent of Respondents Total Sample	 State Lessee	 NFS Lessee
One of the few available at a satisfactory location	48.5	60.0	38.5
Beach, orientation, view	25.0	20.0	30.8
Liked location	8.3	4.0	15.4
Assignment by the government	4.2	0.0	15.4
Afternoon sun (east shore)	4.2	8.0	0.0
Isolation	2.1	4.0	0.0
Beautiful	2.1	4.0	0.0
No response	8.3	-	-
TOTALS	100.0	100.0	100.0

The question was asked with the idea of determining what physical site characteristics were important to the lessee. Unfortunately, it was not answered in this way; no physical qualifications were given. This illustrates a common problem in the use of open-ended questions.

A further breakdown into state and federal lessees shows that 60.0 per cent of the respondents with state leases selected their sites at a time when lots were scarce, and availability was therefore the prime criterion; only 38.5 per cent of the federal lessees located for this reason. Location because of beach, orientation and view factors were given by 20.0 per cent of state lease holders and 30.8 per cent of the federal lessees. The state lessees did not report assignment of a lot by the governing body as a reason for site location while 15.4 per cent of the federal lessees gave this reason.

(iii) The next section of the questionnaire dealt with desired physical characteristics. Questions concerning beach quality, offshore slope, swimming conditions, site access, and site quality were included.

Q10. What do you look for in a cottage site?

So as not to lead the answer, the words "physical characteristics" were not added to the question. Respondents were not limited as to the number of answers they could give. After reviewing the answers, the six headings in Table 18 were derived.

It can be seen from Table 18 that almost half of the total sample mentioned access to water, view, good beach, and uncrowded conditions as desirable criteria for cottage sites. A greater percentage of federal lessees gave this answer. One-fifth of the total sample mentioned clean water, scenery, natural situation, and remoteness as their criteria for cottage sites. The same percentage of state and federal lessees (23.1 per cent) gave this answer. The high degree of similarity between the responses indicates that people generally desire the same qualities.

Table 18

DESIRABLE COTTAGE SITE CHARACTERISTICS

Characteristics	Per Cent of Respondents Total Sample	 State	 NFS
Access to water; view; good beach; uncrowded conditions	43.8	37.4	61.6
Clean water; scenery; natural situation; remoteness	20.8	23.1	23.1
Privacy; peace; trees	14.5	19.2	7.7
Good price; privacy; cabin already built	8.3	11.5	0.0
Level ground; sandy beach	2.1	3.8	0.0
Availability	4.2	3.8	7.4
No response	6.2	-	-
TOTALS	100.0	99.8	100.1

Q11. Does the cottage site have to have a sand beach or is a stony beach acceptable?

Table 19 shows that almost 40 per cent of the sample felt a sand beach was necessary although 50 per cent said that a stony beach was acceptable. There were more Forest Service lease holders who felt a stony beach was acceptable than state lease holders. None of the state lease holders felt that conditions other than sandy or stony would be acceptable while 7.7 per cent of the Forest Service sample felt that other conditions would be acceptable.

Table 19

ACCEPTED BEACH MATERIALS

Characteristics	Per Cent of Respondents Total Sample	State	NFS
Must be sand	39.6	44.8	23.1
Sand is preferable but stone is acceptable	50.0	48.3	61.5
Either sand or stone	8.3	6.9	7.7
Other	2.1	0.0	7.7
TOTALS	100.0	100.0	100.0

Q12. Is "no beach" acceptable?

The sample cottagers were also asked if "no beach" was acceptable. The results show that 27.1 per cent felt "no beach" was acceptable while 70.8 per cent felt that "no beach" was unacceptable. A slightly larger percentage of state lessees felt "no beach" was acceptable than did federal lessees.

Q13. Should the bottom be a smooth, sandy one or are other conditions acceptable?

The result was that conditions other than sand would be acceptable to 60.4 per cent of the sample. Again the state lessees were slightly more willing to accept conditions other than a smooth, sandy bottom (Table 20.)

Table 20

LAKE BOTTOM MATERIALS

Condition of Bottom	Per Cent of Respondents Total Sample	State	NFS
Smooth, sandy	37.5	37.9	41.7
Other acceptable	60.4	62.1	58.3
No response	2.1	-	-
TOTALS	100.0	100.0	100.0

Q14. Should the bottom have a gentle slope or can it drop off quickly?

It can be seen from Table 21 that the state and federal lease holders have similar opinions as to offshore slope with a slightly larger number of state lessees desiring a gentle slope than the federal lessees.

Table 21

OFFSHORE SLOPE

Type of Slope	Per Cent of Respondents Total Sample	State	NFS
Gentle	72.9	75.9	69.2
Drops off quickly	12.5	13.8	15.4
Of no consequence	14.6	10.3	15.4
TOTALS	100.0	100.0	100.0

Q15. What kind of conditions are desirable for swimming?

This was an open-ended question and the answers were grouped into seven categories (Table 22). In four of the seven, clean water is mentioned; these represent 64.6 per cent of the sample. Three of the categories mention gentle slope and this represents 47.3 per cent of the sample. In one of the categories both clean water and gentle slope were mentioned, which accounts for the total percentage being greater than 100. Sand is mentioned in three of the categories and this represents 35.4 per cent of the sample.

Table 22

CONDITIONS DESIRABLE FOR SWIMMING

Conditions	Per Cent of Respondents Total Sample	State	NFS
Hot weather; calm, clean water; sandy shore	8.3	10.7	0.0
Clean, clear water	27.1	32.1	27.3
Clean water; gentle slope (away from boats)	27.1	32.1	27.3
Sandy; gently sloping beach	18.8	14.3	18.2
Warm water; sandy	8.3	10.7	9.1
Clean water, deep	2.1	0.0	9.9
Safety	2.1	0.0	9.1
No response	6.2	-	-
TOTALS	100.0	99.9	100.1

Q16. Does the site have to have direct access to the water?

Seven-eighths of the respondents, or 87.5 per cent, stated that the site must have direct access to the water. One-eighth or 12.5 per cent felt that direct access was not necessary. In the sample, 93.1 per cent of the state lessees felt direct access was necessary while 84.6 per cent of the National Forest lessees felt it was necessary. All cottagers who have owned their cottages for longer than 15 years felt that the site must have direct access to the water. Of those who have owned cottages for longer than five years and less than 15 years, about 87 per cent were in favor of the site having direct access to the water. Two-thirds of the cottagers who have owned their cottages for less than five years stated that direct access to the water was not necessary.

Q17. How far from the water would you be prepared to have a cottage (a 1-2 minute walk, a 3-5 minute walk, a 6-10 minute walk)?

There is the possibility of a problem arising with this question because people's perceptions of walking times vary. The question was not asked to determine the actual distances that people would walk but to see if they felt they had to be located on the beach or were perhaps willing to walk a short distance. The answers indicate that three-quarters of the cottagers would want to locate as close to the beach as possible. Slightly more than half of the respondents gave the answer of a one to two minute walk, and one-quarter stated they would like to be on the beach less than one minute's distance from the water (Table 23). None of the state lessees in the sample would be prepared to live 6-10 minutes walk from the water while 8.3 per cent of the Forest Service lessees would. In the range from 1-5 minutes, the two groups are similar; these answers account for 67 to 71 per cent of the total.

Table 23

WALKING TIME TO WATER FROM COTTAGE

	Per Cent of Respondents		
Walking Time to Water	Total Sample	State	NFS
1 - 2 minutes	52.1	57.1	50.0
3 - 5 minutes	14.6	14.3	16.7
6 - 10 minutes	2.1	0.0	8.3
On beach (less than 1 minute)	25.0	25.0	25.0
Depends on lake and location	2.1	3.6	0.0
No response	4.2	-	-
TOTALS	100.0	100.0	100.0

Q18. Should the cottage site have road access, or should there be some sites which are accessible only by water?

Access by both automobile and boat was the answer given by half of the sample. Table 24 shows that the state and federal lessees agree closely on "both" methods of access, and generally on "road" access but 13.8 per cent of the cottagers with State of Idaho leases felt "boat access only" was preferable while none of the Forest Service sample felt this way.

Table 24

PREFERRED COTTAGE SITE ACCESS

Means of Access	Per Cent of Respondents Total Sample	 State	 NFS
Automobile	37.5	37.9	46.2
Boat	8.3	13.8	0.0
Both	52.1	48.3	46.2
Indifferent	2.1	0.0	7.7
TOTALS	100.0	100.0	100.1

Q19. Should the cottage site be in the trees or in the open?

When asked this question, 93.8 per cent of the sample stated "in the trees." All of the National Forest lessees answered the question this way but 7.1 per cent of the state lessees said the cottage site should be in the open.

(iv) The next section of the questionnaire dealt with use of the lakeshore. The questions concern public use of the land, personal likes and dislikes of the shore area, and the amount of use the land receives.

Q20. Should the water frontage be available for public use with road access?

It seems logical that cottage owners would not want the public to have access to their beaches and the results from this question bear the assumption out. Almost 90 per cent of cottage owners did not want public access (Table 25). Two qualifying statements were expressed by cottagers about 25 per cent of the time. They are, "Yes, if on non-leased or public property," and "No, not on leased property." These have been considered as part of the "no" response. State of Idaho lessees were more strongly in favor of no public use of private water frontage than were the federal lessees. Perhaps this results from the fact that there are more leased cottages on the east side of the lake, and fewer public campgrounds than on federal lands, so the cottage owners feel more compelled to protect the rights to their own beaches. The National Forest lessees have to abide by the rule that lets the public have the right to use the water frontage along National Forest lands. Campers were asked if they were aware that they could use the shoreline along private cottage areas.[4] Generally they were not aware of this ruling and might not take advantage of it anyway; the prospect of spending a day on a private beach could well be unattractive because of the presence of the owner and the lack of service facilities.

Table 25

PUBLIC USE OF WATER FRONTAGE

Cottagers' Views on Public Access	Per Cent of Respondents		
	Total Sample	State	NFS
Yes	6.2	3.6	15.4
No	89.6	92.8	84.6
Indifferent	2.1	3.6	0.0
No response	2.1	-	-
TOTALS	100.0	100.0	100.0

Q21. Do you feel that yearly use of the lakeshore is increasing, decreasing, or remaining about the same during the summer season?

Those who felt that use was increasing accounted for 83.3 per cent of the sample. Those who felt the amount of use was remaining steady made up 14.6 per cent of the sample and a very small group, 2.1 per cent, felt use was decreasing. All lessees who have owned cottages on the lake for more than 25 years think that yearly use of the lakeshore is increasing (Table 26). Of the lessees who have owned cottages on Priest Lake for less than 25 years, 40 per cent in the grouping 21-25 years of ownership, felt that use was remaining the same. None of the cottagers in the 16-20 years of ownership grouping felt that use was remaining the same but ten per cent of this group felt use was decreasing. The table points out that the longer people have been coming to the area, with the exception of those cottagers who have been coming for 21-25 years, the greater the feeling is that yearly use of the lakeshore has increased. Both groups of lessees had similar views on this question.

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[4] At the time of conducting interviews, the author spoke with campers about their knowledge of rights of access to lakeshore frontage.

Table 26

YEARLY USE OF THE LAKESHORE AREA

Years of Ownership	Per Cent of Use Increasing	Use Decreasing	Remaining the Same	Total
0 - 5	33.3	-	66.7	6.4
6 - 10	81.8	-	18.2	23.4
11 - 15	91.7	-	8.3	25.5
16 - 20	90.0	10.0	-	21.3
21 - 25	60.0	-	40.0	10.6
26 - 30	100.0	-	-	8.5
31 - 35	100.0	-	-	2.1
36 - 40	100.0	-	-	2.1

Q22. How do you feel about the increasing, decreasing or current level of use of the lakeshore?

There were nine types of response to this question (Table 27). Two of these account for almost half of the sample and they are opposing viewpoints. Twenty-three per cent felt that increasing use would be all right if properly controlled, and that there was no problem yet with increasing use; opposed to this view was the group (27 per cent) which said that increased use was causing pollution of the water to increase, and that there was an invasion of privacy. Almost 15 per cent of the sample did not answer this question.

Table 27

OPINIONS ON YEARLY USE OF THE LAKESHORE

	Per Cent of			
Opinions on Use	Increasing Use	Remaining the Same	Decreasing Use	Totals
More invasion of privacy, pollution increasing	27.0	2.1	-	29.1
Fine if properly controlled; no problem yet	22.5	4.1	-	26.6
Enjoy uncrowded lake, but there is room for more use	6.2	-	-	6.2
Better care of lakeshore shown by lessee than by public	4.2	2.0	-	6.2
Now use area in winter as well as in summer, less people	6.2	-	-	6.2
Good	2.1	2.1	-	4.2
Enjoy wild state of lakeshore, hope not many more sites plotted	2.1	-	-	2.1
No more people, habits change	-	2.1	-	2.1
Summer coolness	-	-	2.1	2.1
No response	-	-	-	14.6
TOTALS	70.3	12.4	2.1	100.0

Q23. Is there anything about the Priest Lake shore area in general that you particularly like or dislike?

In the final question, the respondents were asked to choose from a list of 13 factors what they liked or disliked about the Priest Lake shore area in general. Six of the 13 choices had less than a 35 per cent response. The problem with most of the headings was that they covered ideas that were too broad. Thus, factors such as "nothing," "everything," "dirtiness," "crowded," "facilities," and "noise," were seldom chosen, and the results give less information than was desired. A table has been designed to include all the answers where response to the factor was greater than 40 per cent (Table 28). Scenery, as the table illustrates, was mentioned most often as a factor enjoyed by the cottagers. The factors cleanliness, fishing and remoteness showed a slight negative response.

Table 28

LIKES AND DISLIKES OF THE SHORE AREA

	Per Cent of Respondents		
Factors	Like	Dislike	No Response
Scenery	95.8	0.0	4.2
Lack of crowding	79.2	0.0	20.8
Cleanliness	77.1	2.1	20.8
Quiet	68.3	0.0	31.3
Beach	62.5	0.0	37.5
Fishing	45.8	8.3	45.8
Remote, hard to reach	39.6	2.1	58.3

Some Subjective Observations

Although the questionnaire covered many areas, it did not deal with some of the specific problems such as sewage control, bears, restrictive use of motorboats in some areas and so on. At the conclusion of the cottager questionnaire, respondents were asked for comments or ideas about the lake which might be useful in discerning problem areas or sources of complaint. The expressed feelings of the cottagers about the lakeshore and its use can aid the governing bodies' understanding of the group and the ideas expressed could be useful for management as well as for planning recommendations. The following comments are some of those which were received. Most common of all was a plea to institute some sort of bill as a form of insurance to protect the state lessee and his investments against sudden changes in lease policy by the State of Idaho.

One retired person with a fixed annual income who leases from the Forest Service said,". . . the increasing lease rates are advancing while my income is not and [I] will be forced to give up the lease."

There were a number of comments that dealt with the advantages of governmental controls and being a cottage owner.

> . . . well managed -- clean beautiful lake, . . . large lots so the neighbors are never too close.
>
> . . . cottagers take good care of the environment around them because. . . they are aware of long term effects. . . .
>
> . . .most government-owned property is beautiful, some private property is a mess.
>
> . . . enjoy controls over cutting of trees on lots, painting of cabins, . . . leaving area in a natural state. . . .

Use of the lake also provided comment:

> Encourage more sailboating, less use of motor boats, should make more use of the total lake area. . . viewpoints, hiking trails. . . .
>
> . . . control water skiing by confining it to certain areas of the lake. . . .
>
> Need better fish management.
>
> . . . control for sewage problems and pollution of the lake. . . .

One person wondered why the lake must be protected for the few:

> . . . government must stop building more campgrounds; local resorts and businesses suffer from such mobile groups. . . besides not all people want to camp. . . facilities and resorts are desired by a large segment of the population.

In opposition to this view:

> . . . time is coming when more campgrounds will have to be established, cottages will have to be removed in areas suited for campgrounds.

There was the cry, "Don't improve the roads. . . it only brings more people into the area," while another said, "Resurface roads."

In order to preserve some natural qualities, one advocate said: "Keep the area north of the lake free of buildings and in a natural state." Another person also wanted to keep Priest Lake natural and free from the problems associated with crowding.

> I'm afraid I am selfish, and hope not too many people find Priest Lake. I'm reminded of the story of Old Man Horton who lived in Coolin in the very early days. He got disgusted and built a cabin at the mouth of a small creek that was later named for him. He left Coolin because he said it was too crowded -- at least 15 people lived there.

Several conclusions arise from these comments which further serve to develop the author's view on the feelings of the cottagers about use of the Priest Lake area. They indicate that cottagers are concerned about preserving the quality environment at Priest Lake, and that they feel themselves to be more careful with the natural environment than are the campers. They also seem pleased with government controls over tree cutting, building construction and lot size; although they are dubious about governmental leasing policies.

Summary for the Cottager Survey

Analysis of the cottager questionnaire brings out some of the similarities and differences between the two groups of lessees. A large percentage of all the respondents claimed familiarity with the area before buying. Almost the same proportions of federal and state lessees lease on term permits, and federal lessees have owned their cottages for longer periods. The National Forest lessees seem to spend either the better part of the summer (5-7 days per week) or little of the summer (less than two days per week) at their cottages. Almost two-thirds of the state lessees spend, on average, between two and four days per week at their cottages.

Half of the sample located at their cottages sites because the lot was one of the few available at a satisfactory location; 50 per cent more of the state lessees gave this reason than did the federal lessees. When questioned about desirable site characteristics, 33 per cent more federal lessees felt that access to water, view, good beach and uncrowded condition were important characteristics; the state lessees seemed more concerned with privacy than physical characteristics. Most of the cottagers preferred sand as beach material with a slightly larger percentage of National Forest lessees willing to accept stone as beach material, although a greater percentage of state lessees felt that "no beach" was acceptable and would be willing to accept bottom conditions other than sand. The majority of cottagers in both groups stated that the bottom should have a gentle slope.

Conditions stated as desirable for swimming were similar for the two groups but state lessees mentioned hot weather while the federal lessees did not. Federal lessees mentioned safety while the state cottage owners did not. Direct access to the water was necessary to both groups, although people who have owned cottages for less than five years did not feel that it was absolutely necessary. Both groups would like to locate as close to the water as possible but, if they had to walk from the cottage to get to the water, federal lessees indicated they would be willing to walk for longer distances.

Both groups agreed that access to the site could be by either road or water. There were some state lessees who felt that access should be limited to boat travel, but none of the federal lessees felt this way. Ninety per cent of the cottage owners did not want the waterfront to be available for public use; a slightly higher percentage of state lessees expressed this feeling.

Most of the lessees felt that yearly use of the lakeshore was increasing but there were two opposing views on this matter. One group expressed doubt about increased use because of pollution and overcrowding while the other felt that increased use would be all right if controlled and that there was no problem yet.

The two groups of cottagers gave generally similar reactions to the questionnaire. Both groups were familiar with the area before buying; felt that lakeshore use was increasing; wanted to locate as close to the water as possible; and believed that access should be by either road or water. Both wanted sandy beaches, warm water and gently sloping lake bottom; and neither wanted their waterfronts to be available for public use.

At the same time, the federal lessees, who generally have owned their cottages for longer periods, would be more tolerant towards slightly adverse physical conditions and towards intrusions upon their privacy. They seemed to be more willing to accept stony beaches, and to walk longer distances to reach the shoreline. More of these lessees would accept the use of their waterfront by the public, and they were more concerned about physical characteristics as reasons for site selection than they were about privacy, as in the case of the state lessees.

In conclusion, the two groups do not differ markedly from each other although the slight differences between them might have become more prominent if the sample size had been larger.

CAMPER SURVEY

There are five "improved" campgrounds on the shoreline of Priest Lake. Use of the term "improved" refers to the charge of a daily user fee and the services that are provided in return, such as garbage collection, running water, and chopped firewood. Four of the campgrounds are located on National Forest lands and one is located on State of Idaho lands at Indian Creek. There is a total of 248 campsites in these campgrounds and the Indian Creek campground has 54 per cent of all the sites, 134 units. The four National Forest campgrounds are much smaller (Table 29).

Table 29

IMPROVED CAMPGROUNDS

Campgrounds	Jurisdiction	Number of Sites	Per Cent of Total Sites
Indian Creek	State of Idaho	134	54.0
Luby Bay	Forest Service	52	21.0
Reeder Bay	Forest Service	19	7.7
Osprey	Forest Service	17	6.9
Outlet	Forest Service	26	10.4
TOTALS		248	100.0

The use of each of the campgrounds over the summer of 1972 has already been described (Fig. 5-5D). It can be seen that Reeder Bay experienced high use all summer, with over 50 per cent usage of the total sites on all except five days (Fig. 5C). As mentioned in Chapter III, the road through the campsite is paved and the area is accessible directly from the highway. Luby Bay campground also experienced high use during the summer with at least 40 per cent of its sites in use during July and August with the exception of a short period in mid-July when occupancy dropped to about 30 per cent (Fig. 5B). Of all the campgrounds, Osprey had the lowest percentage of campsites filled throughout the summer. Seventy-five per cent of the time (60 days) less than half of the campsite was in use (Fig.5A). Outlet campground experienced greater use than Osprey but there were 44 days (55 per cent of the summer) when usage was less than 50 per cent (Fig. 5). Occupancy figures for Indian Creek campground were available for weekends only, but they show that on seven weekends, of a possible fourteen, Indian Creek had greater than 70 per cent usage (Fig.5D). It can be seen that all except Osprey experienced weekends during the summer when capacity was exceeded, and even Osprey reached capacity over the weekends of July 4, July 30 and August 12. The figures also show how the peak attendance in the campgrounds is on the holiday weekends.

Basic Methodology

To carry out a representative sample of campers on the lake would have involved visiting all the unimproved sites as well as the improved sites. Virtually uncontrolled camping is carried out around the lakeshore and it would be impossible to sample all these areas because of a lack of time and the difficulty of choosing a sample. It was decided that the camping questionnaire would be confined to improved campsites on the mainland and to the "developed" sites on the islands (Schneider, Silver and Three Pines). The "developed" island sites offer limited services and no user fee is charged.

It was originally intended to interview one camper, preferably an adult or the head of the group, at each of the 269 campsites but, due to the lack of time and the lateness of the season (which meant that many sites were not occupied), only 112 sites were covered. This is 41 per cent of the total. Half of the sites from each campground were selected for week day surveys and half for weekend surveys to see if there was any difference between the two groups of campers. The 112 personal interviews represent at least 515 people; group totals were not recorded for six of the interviews.

Table 30 gives the number of sites and sampled sites in the campgrounds.

Table 30

SURVEY SITES

Campgrounds	Total Sites	Sampled Sites	Per Cent of Sites Sampled for Each Campground	Per Cent of Sample
Indian Creek	134	23	17.1	20.5
Luby Bay -- Upper	26	24	92.3	21.4
Luby Bay -- Lower	26	16	61.5	14.3
Outlet	26	16	61.5	14.3
Reeder Bay	19	17	89.9	15.2
Osprey	17	4	23.5	3.6
Schneider	5	1	20.0	0.9
Silver	9	6	66.7	5.4
Three Pines	7	5	71.4	4.5
TOTALS	269	112		100.0

Indian Creek, Schneider and Osprey campgrounds had less than one-quarter of their sites surveyed (Table 30). In the case of Indian Creek, this was because of the large size of the campground and the length of time involved in getting to the area from the west side of the lake where the author resided. The trip was about 35 miles one way and half of that distance was on a dirt road which was poorly maintained; it took the better part of an hour to get there. Osprey campground is not as popular as the other National Forest campgrounds because there is no beach area; also, when the survey was carried out in late August, sites were available at other campgrounds (see Figs. 8, 8A, 8B). The people who were camped at Schneider campground on Kalispell Island were boating on the lake at the time the interviews were carried out.

Figure 7

RESPONSE CARDS WHICH WERE USED IN QUESTIONS 37, 17 AND 33

WHICH OF THESE FACILITIES ARE AVAILABLE IN YOUR CAMPING AREA?

1. Water supply
2. Toilets
3. Tent or trailer sites
4. Fireplaces
5. Firewood
6. Tables
7. Boat launching areas
8. Signs and information
9. Rentals (boats, water skis et cetera)
10. Campground roads
11. Hiking trails
12. Gasoline for boats

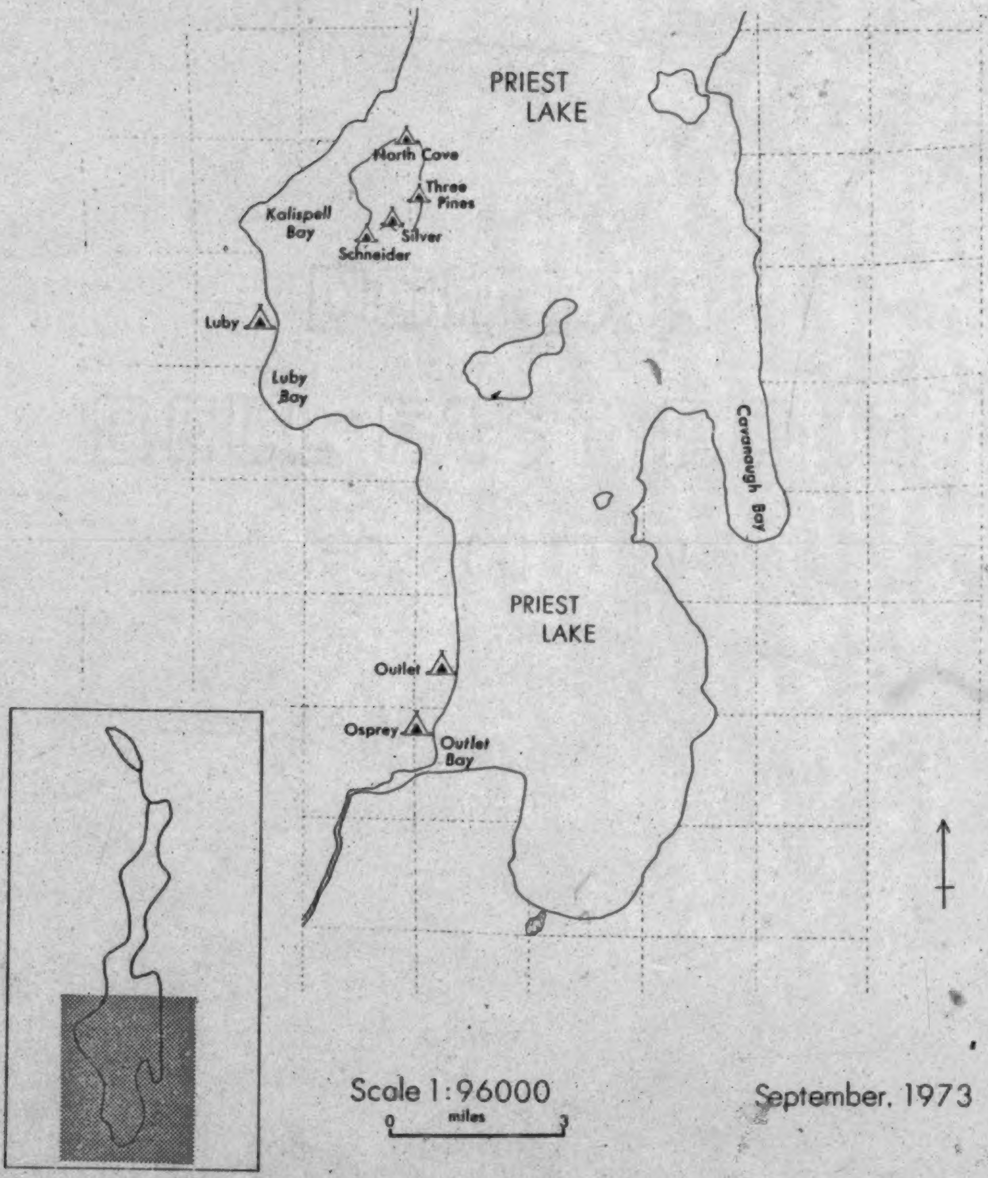
IF NONE OF THE SITES HAD BEEN OCCUPIED WHEN YOU FIRST ARRIVED, WHAT WOULD BE THE REASONS FOR YOUR SELECTION OF A CAMPSITE?

1. Campsite design -- near waterfront
2. Campsite design -- site-area quality (size, aspect, level)
3. Campsite design -- screening (people, noise, prevailing winds, dust, shade)
4. Campsite design -- spur quality (level, wide, long)
5. Facilities -- comfort based (close to wood, toilets, drinking water)
6. Facilities -- activity based (close to beach or launching ramp)
7. Habit -- used this campsite more often in the past than others)
8. Bedrock, boulders, falls or rapids present
9. Terrain characteristics
10. Shoreline characteristics
11. Potential for seeing wildlife

IS THERE ANYTHING ABOUT THE PRIEST LAKE SHORE AREA IN GENERAL YOU PARTICULARLY LIKE OR DISLIKE?

Nothing
Everything
Scenery
Lack of Crowding
Beach
Fishing
Crowded
Facilities
Cleanliness
Dirtiness
Noise
Quiet
Remote, hard to reach

Figure 8 CAMPGROUNDS

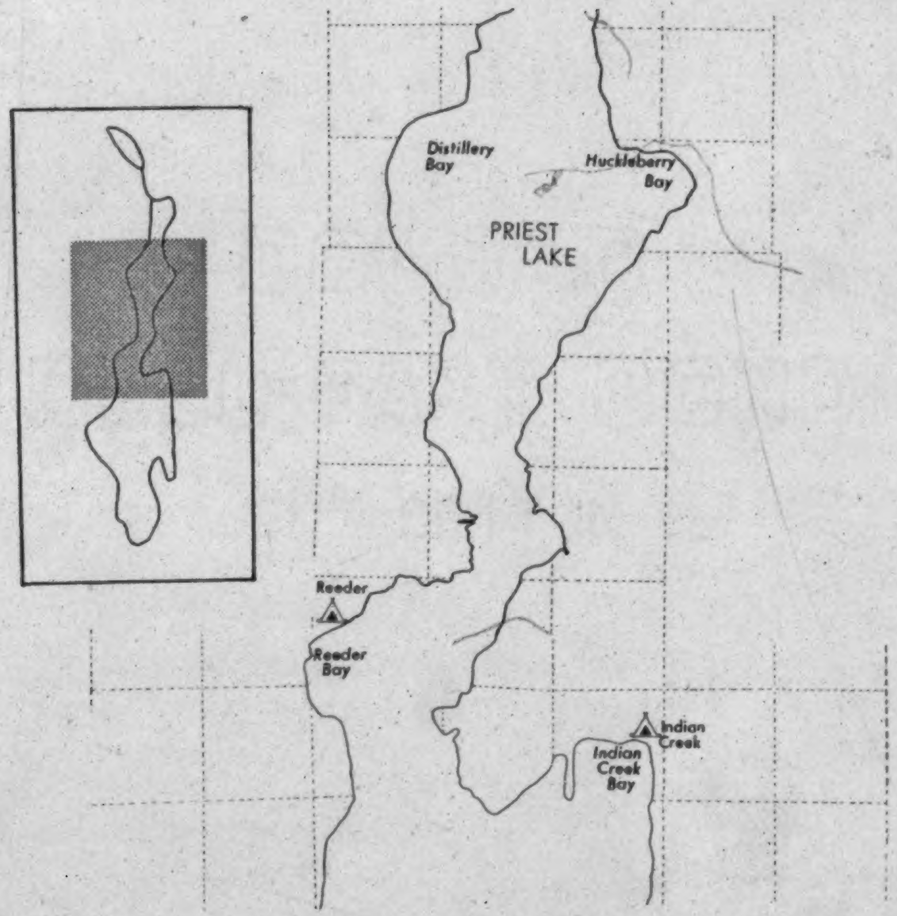

PRIEST
LAKE
North Cove
Three
Pines
Kalispell
Bay
Silver
Schneider
Luby
Luby
Bay
Cavanaugh Bay
PRIEST
LAKE
Outlet
Osprey
Outlet
Bay

Scale 1:96000

0
miles
3

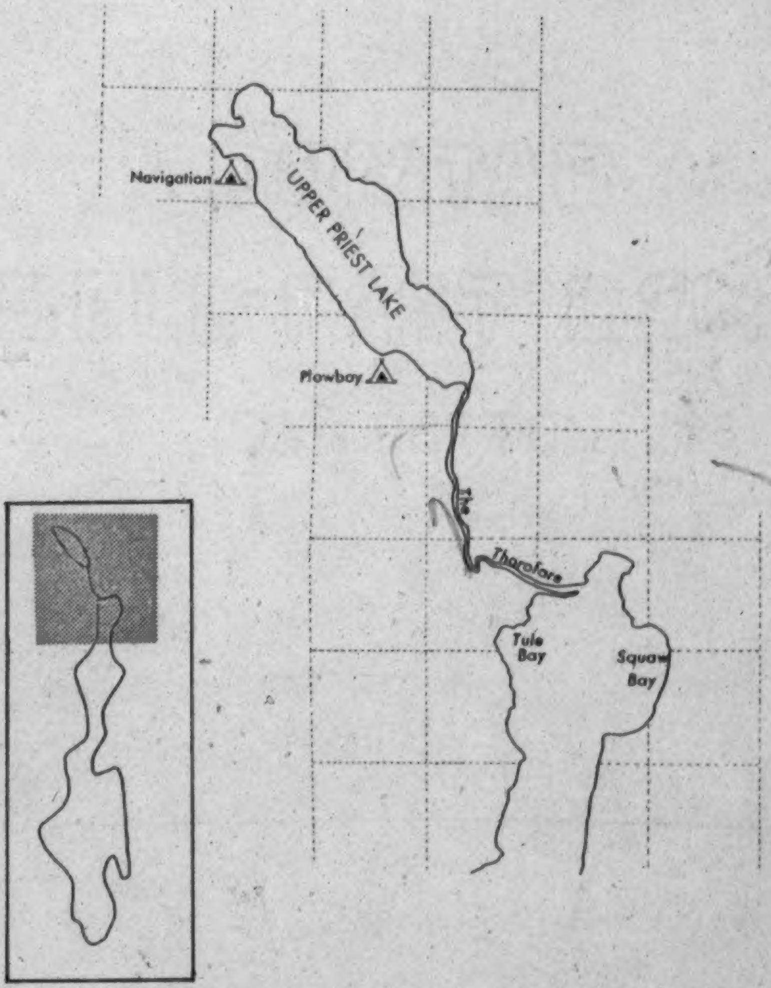
September, 1973

Figure 8A CAMPGROUNDS


Distillery Bay
Huckleberry Bay
PRIEST LAKE
Reeder
Reeder Bay
Indian Creek
Indian Creek Bay

September. 1973

Figure 8B CAMPGROUNDS


Navigation
UPPER PRIEST LAKE
Plowbay
The
Thorofare
Tule Bay
Squaw Bay

September, 1973

In the camper questionnaire the author experimented with both open and closed questions (Appendix C). The closed approach worked quite well with some questions but was abandoned in favor of the open method for others. The question that asked, "Which of these facilities are available in your camping area?" was accompanied by a card which had a list of 12 items from which the respondent could choose (Fig. 7). The list included all the facilities that were available in the camping areas and provided the respondent with the chance to remember all of them. In this case the closed question worked well but for the question, "If none of the sites had been occupied when you first arrived, what would be the reason for your selection of a campsite?", the campers did not like the choices available on the card (Fig. 7). They either combined one or two of them to give the answer or answered with something entirely different. The card was dropped and campers were encouraged to give their own responses and the question became an open ended one.

Origin data for resident and non-resident camping use was available for the Indian Creek area in 1972. It has been made into Table 31 and inserted here because the data were quite similar to those for the National Forest campers.[5] Idaho campers account for about one-sixth of the total, and campers from Washington for more than three-fifths. Alberta has the third highest representation with 9.1 per cent.

Analysis of Data

Cross tabulations were carried out with this data as with the cottager surveys and again they were largely dismissed because they were not instructive.

The completed camper questionnaire provides information about the following general headings: (i) familiarity

---

[5] Visual comparison with origin statistics for campers gathered by Forest Service personnel during the summer of 1972.

Table 31

ORIGIN ANALYSIS OF RESIDENT AND NON-RESIDENT CAMPING USE FOR INDIAN CREEK CAMPGROUND DURING 1972

State or Canadian Province	Campers	Per Cent of Total Campers
Idaho	4,137	15.4
Washington	16,801	61.5
Oregon	645	2.3
California	1,478	5.5
Alberta	2,429	9.1
Others	1,572	5.9
TOTALS	27,062	99.7

Source: Idaho State Parks Department, Manager, Indian Creek Campground.

with the area, (ii) government influence, (iii) physical site characteristics, (iv) use of the lakeshore, and (v) facilities.

(i) Familiarity with and use of the area concerns the number of visits to the area, days spent in the area at the time of the interview, and the number of years the respondent has been coming to the area.

Q1. Is this your first visit to the area?
Q2. If this is not your first visit, for how many years have you been coming here?

Thirty-five per cent of the sample stated that they were on their first visit to the Priest Lake area. The remaining respondents were than asked how many years they had been coming to Priest Lake (Table 32). The average was 7.5 years, with the maximum being 40 years and the minimum one year. Almost 60 per cent had been visiting the lake for less than ten years. All of the campgrounds had campers who had been coming to the area for less than five years. Three Pines and Osprey were the only places where no camper was interviewed who had been coming to the lake for longer than five years. Outlet, Reeder and Indian Creek campground had campers in them who have been coming to the area for at least 25 years.

Table 32

YEARS COMING TO PRIEST LAKE

Years Grouped	Number of Respondents	Per Cent of Respondents
0 - 5	42	37.5
6 - 10	17	15.2
11 - 15	6	5.4
16 - 20	1	0.9
21 - 25	2	1.8
26 - 30	3	2.7
36 - 40	1	0.9
No response (first visitors)	40	35.7
TOTALS	112	100.0

Q3. How many days have you spent in the area during this visit?

Those people who had spent four days or less accounted for 80 per cent of the sample (Table 33). Of the total, almost 34 per cent had spent only one day in the area at the time of the interview, but 45 per cent of these were weekend campers who planned to leave after one more day. Less than six per cent of the sample had spent longer than one week in the area. Indian Creek had the largest percentage of people who had been camping for longer than three days, Silver campground had the second largest.

Table 33

DAYS SPENT IN THE PRIEST LAKE AREA BY CAMPERS

Days	Number of Respondents	Per Cent of Respondents
1	38	33.9
2	27	24.1
3	10	8.9
4	14	12.5
5	10	8.9
6	7	6.2
7	2	1.8
8	3	2.7
14	1	0.9
TOTALS	112	100.0

(ii) This section of the analysis concerns governmental influences and examines the campers' opinions of user fees, site reservations, length-of-stay limits and campsite locations.

Q4. Are you in favor of the user fees now charged in the Priest Lake area campgrounds?

Q5. Why?

The charge for daily use of a site differs between the two jurisdictions. In 1972 all sites in the National Forest campgrounds cost $2.00 per night regardless of the facilities provided. There was no charge for the use of island sites. At Indian Creek in 1972 there was a basic charge of $2.00 per vehicle; if the site had water and electrical hookups the charge increased by $0.50, and if a sewer was added with the water and electrical hookups the charge levied was $3.00 daily. There will be an increase in camping fees at Indian Creek for the 1973 season but the amount has not yet been made public. Table 34 gives a breakdown by campsite of the opinions on user fees. The island campers, as a group, voiced the strongest opposition to the fees, perhaps that is why they choose island sites where no fee is charged. There was a slightly larger percentage (eight per cent) of respondents on their first visit to the

Table 34

CHARGE FOR USERS FEES

Campsite	In Favor of Fees		Opposed to Fees	
	Number	Per Cent	Number	Per Cent
Silver	4	66.7	2	33.3
Schneider	0	0.0	1	100.0
Three Pines	5	100.0	0	0.0
Luby Bay -- Lower	15	93.8	1	6.2
Luby Bay -- Upper	22	91.7	2	8.3
Osprey	4	100.0	0	0.0
Outlet	11	68.8	5	31.3
Reeder Bay	15	88.2	2	11.8
Indian Creek	22	95.7	1	4.3

area who felt user fees should be charged.

After voicing an opinion on user fees, the sample was asked why fees should or should not be levied. This was an open ended question and ten answers were given, four of them as positive responses and six as negative responses (Table 35). The responses that favor user fees account for 68.8 per cent of the answers. The reason given most often, 62.5 per cent of the time, was that fees pay for services and maintenance. Campers from Outlet (Plate 19) and the island sites gave the highest percentage of negative responses towards the payment of user fees. All respondents at Osprey (Plate 20) were in favor of user fees. Golden Eagle Passes for federal parks which allowed campers to buy season passes for all United States federal parks are no longer in use in this area and 5.4 per cent of those questioned felt that the passes should be reinstated and daily rates not charged. This was not a completely negative response because of the initial payment of a fee.

Q6. Do you think the public should be able to reserve recreation sites?

Thirty per cent of the sample answered "yes" and 70 per cent answered "no." There was no appreciable difference in opinions about reservations between those who were at the lake for the first time and people who had been coming for some time. When grouped by years, all those people who had been coming to the lake for more than 20 years were against reserved sites, while one-third of the people who had been coming for between 11 and 15 years were in favor of reservations. Osprey and Silver were the only campgrounds where clear majorities were in favor of reservations (Table 36). Upper Luby was the only other campground which came close, with 45.8 per cent in favor and 54.2 per cent opposed.

Q7. Would you be willing to pay extra to have a recreation site reserved?

Almost one-third of the sample said they would pay

Table 35
REASONS FOR AND AGAINST USER FEES BY CAMPSITE (NUMBER OF RESPONDENTS)

Reasons	Island Sites		Lower Luby		Upper Luby		Osprey		Outlet		Reeder		Indian Creek		Total Responses	Per Cent of Total Responses
	A[1]	B[2]	A	B	A	B	A	B	A	B	A	B	A	B		
Negative																
Areas should be maintained as free areas	1	14.3	0	-	0	-	0	-	1	6.2	0	-	1	7.1	3	2.7
Prefer Golden Eagle Passes	1	14.3	1	6.7	2	8.3	0	-	1	6.2	1	7.1	0	-	6	5.4
Tax dollars already pay for Forest Service	1	14.3	1	6.7	0	-	0	-	0	-	0	-	0	-	2	1.8
Too much money	0	-	0	-	1	4.2	0	-	2	12.5	1	7.1	0	-	4	3.6
Charges should be uniform	0	-	1	6.7	0	-	0	-	0	-	0	-	0	-	1	0.9
Never used to pay - now have to	0	-	0	-	0	-	0	-	1	6.2	0	-	0	-	1	0.9
Positive																
Pays for services and maintenance	4	57.1	12	80.0	21	87.5	4	100.0	9	56.3	10	71.4	10	71.4	70	62.5
Most places charge fees	0	-	0	-	0	-	0	-	0	-	0	-	2	14.3	2	1.8
Keeps the hippies out	0	-	0	-	0	-	0	-	0	-	0	-	1	7.1	1	0.9
Need funds to keep developing	0	-	0	-	0	-	0	-	2	12.5	2	14.3	0	-	4	3.6
No Response															18	16.1
															112	100.0

---

[1] A - Number of Responses

[2] B - Per Cent of Site

Plate 19. A typical site in Outlet Campground.

Plate 20. A site in Osprey Campground.

Table 36

RESERVATIONS FOR RECREATION SITES?

Campgrounds	Number of Responses		Per Cent of Each Campground	
	Yes	No	Yes	No
Silver	4	2	66.7	33.3
Schneider	0	1	0.0	100.0
Three Pines	1	4	20.0	80.0
Luby Bay -- Lower	4	12	25.0	75.0
Luby Bay -- Upper	11	13	45.8	54.2
Osprey	2	1	66.7	33.3
Outlet	1	14	6.7	93.3
Reeder Bay	1	16	5.9	94.1
Indian Creek	6	16	27.3	72.7

extra while 63.4 per cent said they would not (Table 37). The number that said they would pay more money is larger by 6.2 per cent than those who were in favor of reservations. A check on Osprey and Silver campgrounds to see whether they would pay more money to reserve a site when they were the campgrounds with the largest numbers in favor of reservation shows that 50 per cent of those campers at Osprey would pay more money to reserve while only one-third of those camped at Silver would be willing to pay extra. Upper Luby Bay has the same split as in the reservation question with 45.8 per cent willing to pay more money and 54.2 per cent unwilling. Lower Luby Bay, Outlet, Reeder Bay and Indian Creek all had larger percentages of their samples willing to pay extra for reservations than those in favor of reservations. These people felt that if reservations were introduced they would pay the extra money to reserve a site. A higher percentage of weekday users were willing to pay extra money for site reservations than were weekend users, 37.5 per cent as compared with 22.6 per cent of the weekend users.

Q8. When fees are charged, should they increase with the quality of the facility provided?

Three-quarters of the sample said that the price should increase; one-quarter of the sample felt it should not

Table 37

HIGHER COST TO HAVE A SITE RESERVED?

Campground	Per Cent of Respondents for Each Campground Pay Extra Money? Yes	No	No Opinion
Silver	33.3	50.0	16.7
Schneider	0.0	100.0	0.0
Three Pines	0.0	100.0	0.0
Luby Bay -- Lower	37.5	62.5	0.0
Luby Bay -- Upper	45.0	54.2	0.0
Osprey	20.0	80.0	0.0
Reeder Bay	29.4	70.6	0.0
Indian Creek	34.8	60.9	4.3

increase. Weekday and weekend campers felt the same way on this question.

Q9. Does the length-of-stay limit in the campgrounds influence your vacation plans?
Q10. Why or why not?

Those who replied that the limit did not influence them accounted for 88.4 per cent of the sample, whereas 8.9 per cent felt that they were influenced. Campers at Reeder Bay (Plate 21) accounted for 40.0 per cent of those who felt that the length-of-stay limit had an influence. Indian Creek, Upper Luby and Lower Luby Bay each represented 20 per cent of this group. People sampled on weekdays were three times more likely to be influenced by the length-of-stay limit than those sampled on weekends. But the percentage of the total sample that felt influenced was so small that this difference can not be considered significant.

A second part of this question asked why the limit would or would not influence vacation plans. Ten different answers were given; one-third of the sample did not reply. Two of the answers support the claim that vacation plans would be affected, while eight defend the length-of-stay limit as having no influence on holiday plans (Table 38).

Table 38
LENGTH-OF-STAY INFLUENCE BY CAMPSITE

Reasons	Island Sites		Lower Luby		Upper Luby		Osprey		Outlet		Reeder		Indian Creek		Total Responses	Per Cent of Total Responses
	A[1]	B[2]	A	B	A	B	A	B	A	B	A	B	A	B		
Influence																
2 week limit would be better	0	-	1	6.7	1	6.2	0	-	0	-	4	28.6	0	-	6	8.6
Probably would stay longer	0	-	1	6.7	0	-	0	-	0	-	-	-	2	25.0	3	4.3
No Influence																
Would not stay that long	3	50.0	8	53.3	11	68.8	3	100.0	6	75.0	6	42.9	4	50.0	41	58.6
Seldom have more than 10 days	1	16.3	1	6.7	3	18.8	0	-	2	25.0	2	14.3	2	25.0	11	15.7
Stayed longer - limit not enforced	1	16.3	1	6.7	0	-	0	-	0	-	0	-	0	-	2	2.9
Close enough to area	0	-	1	6.7	0	-	0	-	0	-	0	-	0	-	1	1.4
Only 2 week vacation	1	16.3	1	6.7	0	-	0	-	0	-	0	-	0	-	2	2.9
Move from campground to campground	0	-	0	-	1	6.2	0	-	0	-	0	-	0	-	1	1.4
Not aware of limit	0	-	1	6.7	0	-	0	-	0	-	1	7.1	0	-	2	2.9
Past peak season	0	-	0	-	0	-	0	-	0	-	1	7.1	0	-	1	1.4

[1] A - Number of Responses

[2] B - Per Cent of Sites

The most common answer was that the campers "would not stay that long:" this accounted for 58.6 per cent of the total. A closely related response was that campers "seldom have more than ten days" in an area, as travelling takes up at least two days of the two week holiday. This was given by 15.7 per cent of the sample, but was challenged in the third most common response, that "a two week limit would be better." All of the people who felt influenced by the length-of-stay limit were weekday campers, which might indicate that they were going to be there for longer than two weekends and thus might want to over-stay the limit.

Q11. Do you feel the limit should be strictly enforced?
Q12. Why?

Seventy per cent answered yes, the limit should be strictly enforced, and 23.2 per cent answered no. Respondents in all of the mainland campgrounds were at least two-thirds in favor of enforcing the limits. Those on the island campgrounds were at least 50 per cent opposed to the limit. About 55 per cent of the weekday sample were in favor of the limit being enforced while only 44.7 per cent of the weekend people were in favor of enforcement.

Campers were also asked "why" the limit should or should not be strictly enforced. This part of the question has been grouped into twelve answers; three of the answers oppose enforcement, seven agree with enforcement, and two are conditional (Table 39). The island sites had the highest percentage of people opposed to enforcement while Lower Luby Bay had the highest percentage of support for enforcement.

Q13. Have you changed the location of your campsite since the beginning of your visit at Priest Lake?
Q14. If yes, which campsites have you been to?
Q15. Why did you move?

There was a problem with this set of questions

Table 39
LENGTH-OF-STAY LIMIT ENFORCEMENT

Reasons	Island Sites		Lower Luby		Upper Luby		Osprey		Outlet		Reeder		Indian Creek		Total Number Respondents	Per Cent of Total
	A[1]	B[2]	A	B	A	B	A	B	A	B	A	B	A	B		
For Enforcement:																
Tourist turnover gives everyone a chance	3	25.0	10	62.5	17	73.9	1	25.0	13	86.7	8	57.1	8	47.1	60	59.4
Enforced if crowding	2	16.7	4	25.0	3	13.0	2	50.0	0	-	4	28.6	5	29.4	20	19.8
Enforced if in a large group	1	8.3	0	-	0	-	0	-	0	-	0	-	0	-	1	1.0
Enforce, otherwise no point in having limit	0	-	1	6.3	0	-	0	-	0	-	0	-	0	-	1	1.0
Hippies will stay all summer	0	-	0	-	0	-	0	-	1	6.7	0	-	1	5.9	2	2.0
Too much local use	0	-	0	-	0	-	0	-	0	-	0	-	1	5.9	1	1.0
Overuse	0	-	0	-	0	-	0	-	0	-	1	7.1	0	-	1	1.0
Against Enforcement:																
Should be able to use forests as want to	2	16.7	0	-	2	8.7	0	-	1	6.7	1	7.1	1	5.9	7	6.9
Some can only afford to camp	1	8.3	0	-	0	-	0	-	0	-	0	-	0	-	1	1.0
People will leave on their own	2	16.7	1	6.3	0	-	1	25.0	0	-	0	-	0	-	4	4.0
Conditional:																
Enforce unless other sites are available	1	8.3	0	-	0	-	0	-	0	-	0	-	0	-	1	1.0
Limits should be for longer periods (14-21 days)	0	-	0	-	1	4.3	0	-	0	-	0	-	1	5.9	2	2.0

[1] A - Number of Responses

[2] B - Per Cent of Site

because of the timing of the sampling. In late August few groups with school children are going to camp for any length of time and very few would stay over the two week limit. There were usually enough sites available at the various campgrounds to find one which was suitable, although people did move within the campgrounds to sites closer to the water. Only one-sixth of the campers had changed campsite location since their present visit began. Of this small group, one-third had been located in Lower Luby Bay (Plate 22), one-fifth had been located in Outlet, one-fifth in Upper Luby, and about one-eighth at Reeder Bay campground. In 60 per cent of these moves the campers moved to better sites, usually closer to the water, within the same campground. Only 13.3 per cent moved because they had reached the length-of-stay limit.

(iii) This section of the questionnaire deals with physical site characteristics that the campers look for in site selection: conditions of the lake bottom, accessibility, beach materials, and privacy and site location.

Q16. Did you have a preference for a campsite when you first arrived?

The answers given seem to reflect either actual campsites that the campers had in mind or just types of campsites with certain desired qualities. This again illustrates the problem of interpreting open questions, particularly with respect to word choice. Those campers who arrived with a preferred campsite in mind represented 70.5 per cent of the sample. All campers on Schneider and Silver campgrounds had actual site preferences. Over 70 per cent of the campers in all other campgrounds, except Upper Luby Bay (58.3 per cent), also had site preferences. When they were asked where the preferred site was, 21.7 per cent said closer to the water, 21.7 per cent said Reeder Bay campground and 13.0 per cent mentioned Schneider campground on Kalispell Island. These

Plate 21. A Reeder Bay Campground site.

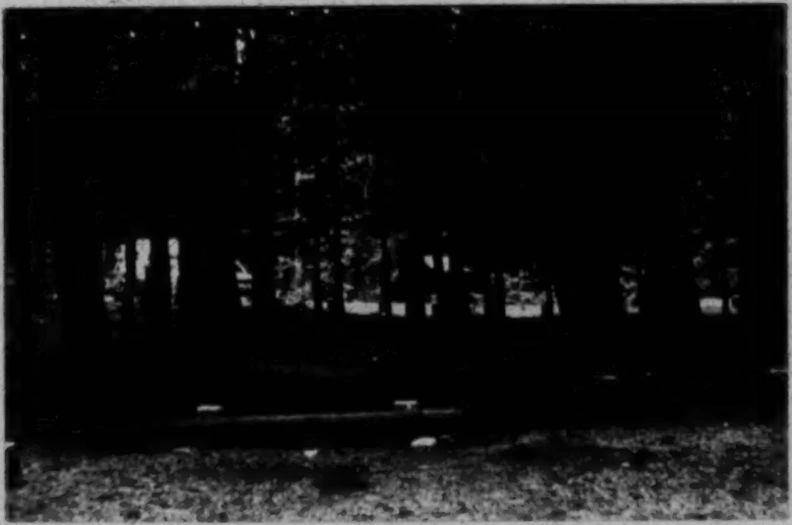


Plate 22. A well used site in Lower Luby Bay.

three answers represented 56.4 per cent of the response. Each of the other answers represented less than ten per cent of the sample.

Q17. If none of the sites had been occupied when you first arrived, what would be the reason for your selection of a campsite?

Almost 46 per cent of the campers chose "campsite design -- near waterfront" as their reason for campsite selection (Table 40). Campers from Outlet and Reeder Bay campgrounds account for about half of this group. Campers seem to value privacy, as "campsite design with screening" was the second highest choice for site selection; 11.7 per cent of the sample would choose a site for this reason. Upper Luby Bay campers accounted for 53.8 per cent of this answer. This is interesting because the Upper campground is quite well screened and would seem to conform to the campers' desires.

An answer that combines "campsite design, near waterfront," and "sunshine" experienced the third highest rate of selection (9.9 per cent). Thirty-six per cent of this answer came from Indian Creek campers, campers at Three Pines on Kalispell Island contributed 27.3 per cent, and Outlet campground campers made up 18.2 per cent of the response.

Q18. What do you look for in a beach area?

Fourteen different answers were given here but only those answers that involve at least one-third of the sample will be discussed. Respondents were not limited in their potential responses. Sand, preferably clean sand, was the most frequently mentioned characteristic that is desired in a beach area; 90.2 per cent of the sample look for this. Next came clean water (35.7 per cent). The respondents did not identify what they meant by clean water but it was mentioned consistently as a desirable characteristic for a beach area. Some campers in each of the mainland sites

Table 40
REASONS FOR SITE SELECTION BY CAMPSITE

Reasons	Island Sites	Lower Luby	Upper Luby	Osprey	Outlet	Reeder	Indian Creek	Total Number Of Respondents	Per Cent of Total Respondents
Campsite Design:									
Near Waterfront	3	6	8	3	13	11	7	51	45.9
Site-area quality	0	1	0	0	0	0	2	3	2.7
Screening	2	0	7	0	1	2	1	13	11.7
Spur Quality	0	0	3	0	0	1	0	4	3.6
Facilities:									
Comfort-based (for example shower and toilet facilities)	0	1	0	0	0	0	3	4	3.6
Combinations:									
Near waterfront and facilities comfort based	1	0	1	0	0	1	4	7	6.3
Campsite design, near waterfront and sunshine	5	0	0	0	2	0	4	11	9.9
Screening and privacy	1	1	4	0	0	0	0	6	5.4
Near waterfront and screening	0	3	1	1	0	1	0	6	5.4
Facilities - comfort and activity based	0	1	0	0	0	0	0	1	0.9
Screening; activity based facilities	0	2	0	0	0	0	0	2	1.8
Near waterfront; spur quality	0	0	0	0	0	1	1	2	1.8
Spur quality and comfort based facilities	0	0	0	0	0	0	1	1	0.9

mentioned clean water, whereas none of those on the island sites did. A gently sloping lake bottom was mentioned by 32.1 per cent of the sample. The following characteristics for beaches were each noted by approximately one-sixth of the sample: sunshine, a separation of areas for motor boats and swimmers, and beaches that are not overcrowded.

Q19. Does the site have to have a sand beach or is a stony beach acceptable?

This question was also used in the cottager survey. Campers who answered that the beach must be sand represented 57.1 per cent of the sample; those who said that sand was preferable, but that a stony beach was acceptable, represented 42.9 per cent. In both Silver and Schneider campgrounds all respondents answered that the beach must be sand. In all the others, except Reeder Bay, where 58.8 per cent of the sample said the site could have a stony beach, at least 50 per cent of the campers said that the site must have a sand beach (Table 41).

Table 41

BEACH MATERIALS FOR CAMPSITES

	Per Cent of Response	
Campsites	Must Be Sand	Sand Preferred But Stony Beach Acceptable
Silver	100.0	0.0
Schneider	100.0	0.0
Three Pines	60.0	40.0
Luby Bay -- Lower	56.3	43.8
Luby Bay -- Upper	54.2	45.8
Osprey	50.0	50.0
Outlet	50.0	50.0
Reeder Bay	41.2	58.8
Indian Creek	65.2	34.8

Q20. Is "no beach" acceptable?

This question, and the four to follow, were also asked in the cottager questionnaire. At least 24.1 per cent of the sample felt that no beach was acceptable. Those who felt no beach was unacceptable represent 74.1 per cent of the sample, and 1.8 per cent gave no answer. Again, campers at two of the island sites, Silver and Schneider, felt no beach was totally unacceptable. Less than one-third of all mainland campers felt no beach was acceptable with the exception of Osprey Campground where half of the sample felt no beach was acceptable.

Q21. Should the lake bottom be smooth and sandy or are other conditions acceptable?

The results show that 64 per cent of campers felt the bottom should be smooth and sandy while 36 per cent felt other conditions were acceptable. At least 50 per cent of the campers in the sample, except for those in Reeder Bay and Three Pines, felt that the lake bottom should be smooth and sandy (Table 42).

Table 42

CONDITION OF BOTTOM

Campgrounds	Per Cent of Respondents Smooth, Sandy	 Other Acceptable
Silver	66.7	33.3
Schneider	100.0	0.0
Three Pines	40.0	60.0
Luby Bay -- Lower	93.8	6.2
Luby Bay -- Upper	58.3	41.7
Osprey	50.0	50.0
Outlet	60.0	40.0
Reeder Bay	41.2	58.8
Indian Creek	73.9	26.1
Total Sample	64.0	36.0

Q22. What other types of conditions would be acceptable?

Sixty-seven per cent of the sample did not answer this question. Of those who answered, 59.5 per cent said stones would be acceptable. Also mentioned as acceptable were large rocks, pebbles, and anything if the bottom was clean and free of weeds.

Q23. Should the bottom have a gentle slope or can it drop off quickly?

Eighty-six per cent of the sample said the bottom should have a gentle slope, 5.4 per cent said it should have a sheer drop and 8.6 per cent were indifferent. More than 95 per cent of Indian Creek and Upper Luby Bay campers stated that the bottom must have a gentle slope. Indian Creek campers were the only mainland group to register no statements in favor of a steep drop-off. The island campers unanimously favored a gentle slope.

Q24. Should the beach be accessible only by boat, or only by car, or by both?

Campers from the island sites were not asked this question as only boat access is possible. Eighty-four per cent of the sample size of 100 answered that the beach should be accessible by both, four per cent said by boat only, and five per cent said by car only. Six per cent of the sample gave other answers; by foot only, depends on the geography, and by both foot and boat (Table 43).

Q25. How far from your campsite are you prepared to walk to get to the water? (one to 2 minutes, 3 to 5 minutes, 6 to 10 minutes walk).

Slightly more than one-third of the sample said they would be willing to walk for three to five minutes, and another third said they would walk for one to two minutes. These two groups represent 68.7 per cent of the sample. Quite a large number of campers, better than one-fifth, would be willing to walk for six to ten minutes to get to the water (Table 44). None of the island campers would be willing to walk for more than two minutes to reach the water. Island campsites are all on the beach. By contrast, 95 per cent of Upper Luby Bay campers were willing to walk for more than two minutes, which is probably related to the fact that the campground is more than two minutes away from the water. Indeed, more than 40 per cent of the Upper Luby Bay campers stated their willingness to walk for

Table 43
MODES OF BEACH ACCESS

Mode	Upper and Lower Luby		Osprey		Outlet		Reeder		Indian Creek		Total Responses	Per Cent of Sample Excluding Islands
	A[1]	B[2]	A	B	A	B	A	B	A	B	Excluding Islands	
Boat	2	5.0	0	-	0	-	2	11.8	0	-	4	4.0
Car	3	7.5	0	-	0	-	1	5.9	1	4.3	5	5.0
Both	32	80.0	3	75.0	13	81.3	14	82.4	22	95.7	84	84.0
Neither	1	2.5	0	-	0	-	0	-	0	-	1	1.0
Foot	1	2.5	0	-	0	-	0	-	0	-	1	1.0
Depends (on geography)	1	2.5	1	25.0	1	6.2	0	-	0	-	3	3.0
Boat and foot	0	-	0	-	2	12.5	0	-	0	-	2	2.0

[1] A - Number of Responses

[2] B - Per Cent of Site Responses

Table 44
WALKING TIME FROM WATER TO CAMPSITE

Walking Time	Islands		Lower Luby		Upper Luby		Osprey		Outlet		Reeder		Indian Creek		Total Response	Per Cent of Total
	A[1]	B[2]	A	B	A	B	A	B	A	B	A	B	A	B		
1 - 2 minutes	12	100.0	6	37.5	1	4.2	1	25.0	8	50.0	3	17.6	5	21.7	36	32.1
3 - 5 minutes	0	-	4	25.0	8	33.3	1	25.0	7	43.8	8	47.1	13	56.5	41	36.6
6 - 10 minutes	0	-	4	25.0	10	41.7	2	50.0	0	-	4	23.5	5	21.7	25	22.3
Indifferent	0	-	0	-	3	12.5	0	-	0	-	0	-	0	-	3	2.7
Any distance	0	-	2	12.5	2	8.3	0	-	1	6.2	2	11.8	0	-	7	6.2

[1] A - Number of Responses

[2] B - Per Cent of Site Responses

six to ten minutes to get to the water. Only the Osprey campground showed a higher proportion in this category. The question of accurate perception of walking time arises but the fact that the campers would be willing to walk for a few minutes, or a moderate distance, is the important point. Between 43 and 80 per cent of the campers from the mainland sites were willing to walk for up to five minutes.

In reviewing the distance campers are willing to walk from the campsite to the water, a difference between weekend and weekday campers shows up. While more than half of the weekend campers are not willing to walk any longer than two minutes, only one-quarter of the weekday campers feel this way. Only 48.4 per cent of the weekend campers will walk for up to five minutes while 70.8 per cent of the weekday campers are willing to do this.

Q26. What physical characteristics do you look for in the area surrounding your campsite?

This open-ended question had nine responses. Only answers that were given by at least one-fifth of the sample will be discussed. Vegetation meaning shade, trees in particular, was the most often mentioned characteristic; this was cited by 77.7 per cent of the sample. The importance of level ground was mentioned by 32.1 per cent of the sample, and 22.3 per cent looked for a natural setting. Spacing between the sites, scenery and closeness to water were each mentioned by more than ten per cent of the sample.

Q27. Is privacy important to you?

Privacy was important to 86.6 per cent of the sample and unimportant to 13.4 per cent. The largest group of campers to feel that privacy was unimportant came from Indian Creek; 26.1 per cent of the Indian Creek campers felt this way (Table 45). Their opinions may be affected by the fact that Indian Creek offers the least privacy of all the improved campgrounds. One hundred per cent of the campers sampled at the Osprey and Three Pines campgrounds felt that privacy was important to them. People on their first visit to the area were slightly more concerned with privacy than were those who had been to the area before. In fact, the importance of privacy seems to diminish steadily as the number of years that people have been coming to the area increases. Eighty-three per cent of those people who have been coming to the area for more than six years felt privacy was important; the proportion fell to 50 per cent for those people who have been coming to the area for more than 20 years, and to 33 per cent among the over 25 year group.

Table 45

IMPORTANCE OF PRIVACY BY CAMPSITE

	Yes		No	
Campsite	Number of Responses	Per Cent of Site	Number of Responses	Per Cent of Site
Islands	10	83.3	2	16.7
Upper and Lower Luby Bay	36	90.0	4	10.0
Osprey	4	100.0	0	-
Outlet	14	87.5	2	12.5
Reeder	16	94.1	1	5.9
Indian Creek	17	73.9	6	26.1
Total Responses	97		15	
Per Cent of Responses from Total Sample		86.6		13.4

Q28. Is lack of privacy important enough to force a move to a different campsite?

This question drew a positive response from 67.9 per cent of the sample, yet at two campgrounds, Reeder Bay and Upper Luby Bay, slightly more than half of the respondents thought lack of privacy was not important enough to force a move. Campers in Lower Luby Bay, on the other hand, are very likely to move if their privacy is invaded (81.3 per cent). Similarly, more than 83.5 per cent of the island campers would move if there was a lack of privacy. Weekend campers (80.6 per cent) were slightly more inclined to move than weekday campers (73.2 per cent).

Q29. What would cause an invasion of privacy that might force a move?

Thirty per cent of the sample answered this question: 41.2 per cent of the respondents said they would move because of crowding, while another 41.2 per cent mentioned that they would move if noise and crowding persisted over several days. Of the people who said they would not move, 8.8 per cent of total respondents gave as their reason, "there is too much stuff to move, once settled in." The other reasons for not moving dealt with safety in numbers from bears, and meeting people.

(iv) The fourth section of the questionnaire dealt with the use of the lakeshore; lakeshore development; the number of people in the area; whether or not the camper has a boat; and camper likes or dislikes of the shore area.

Q30. Generally speaking, what do you think of the present development of the Priest Lake area?

Ten per cent felt that the area was undeveloped, 5.4 per cent felt it was overdeveloped and 78.6 per cent felt that present development was just about right. There was no response from 5.4 per cent of the sample. Except in Reeder Bay, more than 70 per cent of the sample in each campground felt that present development was just about right (Table 46). The four largest campgrounds, Upper and Lower Luby Bay, Indian Creek and Reeder Bay, were the only ones for which underdevelopment was reported. Silver, Reeder Bay and Upper Luby Bay were the only campgrounds where some campers felt the area was overdeveloped. At least half of the people who had been coming to the area for more than 20 and less than 30 years felt that the area was underdeveloped. More than 60 per cent of the people who had been coming to the lake for less than 20 years felt that the amount of development on the lake was just about right.

Table 46

PRESENT DEVELOPMENT OF THE PRIEST LAKE AREA

	Per Cent of Response		
Campgrounds	Under-Developed	Over-Developed	About Right
Silver	0.0	20.0	80.0
Schneider	0.0	0.0	100.0
Three Pines	0.0	0.0	100.0
Luby Bay -- Lower	26.7	0.0	73.3
Luby Bay -- Upper	8.7	8.7	82.6
Osprey	0.0	0.0	100.0
Outlet	0.0	0.0	100.0
Reeder Bay	23.5	17.6	58.8
Indian Creek	9.1	0.0	90.9

Q31. Generally speaking, what do you think of the number of people using this area?

"Too many people" said 25.9 per cent of the sample while 67.9 per cent felt that the number of people now using the area was about right. Only 5.4 per cent felt that there could be more people using the area. The groups from Indian Creek and Schneider were the only ones which did not mention that there were too many people in the area. There is quite a difference in opinion between those who were first-time visitors to the area and campers who had been in the area before. One-third of the campers who had been to the area prior to this visit felt that there were too many people whereas only one-tenth of the first-time visitors felt this way. Eighty-five per cent of the first-time visitors felt that the number of people using the area now was all right while only 60 per cent of the campers who had been to the area before felt this way. Only five per cent of each group felt that the area could accommodate more people.

Q32. Do you think your group will visit this campsite again?

Ninety-four per cent said they would visit their campsite again. At Indian Creek, Osprey, Upper Luby Bay and Schneider campgrounds, the response was 100 per cent. Two of the island sites, Three Pines and Silver, had the only campers who said they would not return; in both cases they accounted for less then one-fifth of the sample. Silver had the lowest of all positive responses but, even here, two-thirds of the campers said they would return.

The main reasons for not returning to campsites, as expressed by 6.3 per cent of the sample, were "found site hard to reach" and "too many people."

Q33. Is there anything about the Priest Lake shore area in general that you particularly like or dislike?

A card with several choices was given to the respondents who were not limited in their number of choices (see Figure 7). The answers with a response level of greater than one-fifth of the sample will be discussed.

"Everything" was liked by 57.1 per cent of the sample. The "beach" was given a positive rating by 41.1 per cent, and only 2.7 per cent did not like it. At Osprey campground, which has no beach, two-thirds of the sample disliked the beach. No campers disliked the "scenery," and 36.6 per cent gave that answer as a factor they liked about Priest Lake. Those who disliked "nothing" accounted for 18.8 per cent of the sample. "Lack of crowding" was enjoyed by 26.8 per cent of the campers; no one disliked this characteristic.

Over one-fifth of the sample liked the "facilities" while only 2.0 per cent did not; 77.7 per cent did not respond to this characteristic. Dislike of "facilities" was mentioned in only two campgrounds, Indian Creek and Reeder Bay, and by less than 25 per cent of the respondents in each case. One-fifth of the total sample liked the "cleanliness" of the shore area; 78.6 per cent did not mention this characteristic. The final characteristic to be mentioned was "quiet," by about one-fifth of the sample.

Q34. Is there anything about this campsite that you particularly like or dislike?

As a follow up to the previous question, campers were asked if there was anything about their particular campsite that they liked or disliked. There were 12 answers given for this open-ended question but only five of them are worth mentioning as the rest each have over 100 missing observations. Spacing of the sites for privacy was liked by 21.4 per cent of the campers; only 1.8 per cent of the sample did not like the spacing, and they were all from Indian Creek and Upper Luby Bay campgrounds. One-eighth of the sample mentioned either a like or dislike for the toilet facilities; 7.1 per cent liked them and 4.5 per cent disliked them. The proximity of their campsite to the water was liked by 11.6 per cent of the sample. About 11 per cent of the sample disliked the bare earth of the campground and the dust that resulted from this. Spur quality or the design of the site -- level ground, width of the parking space, proximity to the picnic tables -- was disliked by 5.4 per cent of the sample and 3.6 per cent thought it was good; 91.1 per cent of the sample did not mention this factor.

Q35. Do you have a boat? What type?

Forty per cent of the campers had boats while 60 per cent did not. Of those people who had boats, 37.3 per cent were camped on island sites, 31.8 per cent were camped in Luby Bay, 15.9 per cent were at Reeder Bay, 13.6 per cent at Indian Creek and 11.4 per cent at Outlet campground. None of the campers interviewed at Osprey campground had boats. Outboard motor boats, powered by motors ranging from two horsepower to 270 horsepower, accounted for 72 per cent of the total boats used. Canoes and sailboats together accounted for only 11 per cent of the boats in the sample.

Q36. These facilities are available in the Priest Lake area. List the ones that you do not use.

Q37. Which of these facilities are available in your camping area?

Campers were given a card which listed all facilities available for public use offered at Priest Lake (see Figure 7). The answers show a strong relationship between the number of facilities which campers did not use and those which were unavailable in their camping area. Only the facilities that had greater than 15 per cent non-use are listed here. Water supply was not used by 15 per cent of the sample and 10.7 per cent of the sample said that water was unavailable. Only 35.7 per cent of the campers use boat launching sites; 92.9 per cent of the sample said that launching sites were not available in their camping areas. Eighty per cent of the sample did not make use of rentals; 96.4 per cent said rentals were unavailable in their camping area. One-fifth of the sample did not make use of hiking trails and the same proportion reported that hiking trails were unavailable in their camping areas. Gasoline for boats was used by 38.4 per cent of the sample and 96.4 per cent of the sample reported that it was unavailable in their camp areas.

Q38. Of the facilities available in your camping area and in the Priest Lake area, which are not desirable?

Those feeling that none of the facilities was undesirable represented 81.3 per cent of the sample. The toilet facilities were listed as undesirable by 6.2 per cent of the campers. Campers also mentioned that more firewood was needed, boat launching areas should be increased and tent or trailer sites could have a better design.

Summary for the Camper Survey

The campgrounds at Priest Lake are highly used. Osprey campground is the least used of the sample; it was less than half full for 75 per cent of the 1972 summer season, possibly because it has no beach. The other campgrounds, however, were at least 40 per cent full and usually greater than 60 per cent full for 45 per cent of the summer.

At least two-thirds of the campers in all campgrounds, except Schneider, were in favor of user fees to help pay for services and maintenance. On the other hand, 70 per cent of the sample were opposed to reservations for recreation sites and 64 per cent said they would not pay extra money to have a site reserved. Only in Osprey and Silver campgrounds was there a majority of campers who were in favor of reservations. Campers who had been coming to the area for more than ten years but less than 15 years were the largest group in favor of reservations.

Almost 90 per cent of the sample was not influenced by the length-of-stay limit, basically because they would not stay that long. Of the campers who were influenced, a greater percentage came from the weekday sample. Seventy per cent of all campers felt the limit should be strictly enforced for the main reason that it would give everyone a chance to camp instead of providing an experience for just the select few who were able to obtain campsites. Half of the sample would select a campsite for its location, near the waterfront, and its design. Campers also considered screening for privacy, through the use of vegetation, as important.

Ninety per cent of the sample mentioned clean sand as the most desirable characteristic in a beach area. Clean water was the next most desirable characteristic; though it was not mentioned by any of the island campers. Fifty-seven per cent of the sample said that the beach must be sandy, and at two of the island sites, Silver and Schneider, all the campers felt this way. Three-quarters of the campers felt "no beach" was unacceptable, and all of the Silver and Schneider campers felt it was unacceptable.

Two-thirds of the sample felt the lake should have a smooth, sandy bottom but that other materials, such as stones, rocks or pebbles, would be acceptable if the bottom was clean. Eighty-six per cent of the sample felt the bottom should have a gentle slope; everyone at the island sites and Indian Creek held this opinion.

More than four-fifths of the campers felt the beach should be accessible by both car and boat. When asked how far they would be willing to walk from their campsites to reach the lakeshore, one-third replied that they would not walk for more than two minutes; all the island campers are in this group. One-fifth of the sample said they would walk for up to ten minutes. Those willing to walk a moderate distance, up to five minutes, represented between 43 and 80 per cent of the campers for all the mainland campsites. Campers sampled on the weekends were not prepared to walk as far as the weekday sample; 50 per cent of the weekend campers would walk for up to five minutes while 70 per cent of the weekday sample would be willing to do this.

Campers stated that vegetation and shade were the most desired physical characteristics for the area around their campsites. Vegetation would provide some privacy, and privacy was important to 87 per cent of the sample. Indian Creek had the largest percentage of campers who felt privacy was unimportant, which may be related to the fact that this campground offers the least private campsites. Two-thirds of the campers would move if the lack of privacy resulted in crowding and noise.

Almost 80 per cent of the campers felt that present development of the Priest Lake area was just about right. Only in Reeder Bay, Silver and Upper Luby campgrounds did any of the campers feel that the area was overdeveloped. At the same time, 25 per cent of the campers felt that too many people were using the area, and only two-thirds felt that the number was just about right. Indian Creek and Schneider were the only campgrounds where no one mentioned that there were too many people. Further analysis showed that people who had been camping at Priest Lake for the greatest number of years were more likely to feel that there were too many people in the area.

Ninety-four per cent of all campers said they would visit their campsites again; all campers at Osprey, Indian Creek, Upper Luby Bay, and Schneider campgrounds would return. Silver and Three Pines, both island sites, were the only campgrounds where people said they would not return; too many people and difficult access were the reasons that were given.

In general, campers seemed to like the beaches, the scenery, the lack of crowding, the quietness and the facilities in the Priest Lake area; they also liked the spacing between the campsites.

Use of facilities seemed to be related to those facilities which were available in the immediate camping area. More than 80 per cent of the campers used the water supply and the hiking trails, and these facilities were available to at least 80 per cent of the sample. Forty per cent of all the campers interviewed had boats, the people came from all campgrounds except Osprey. Similarly, forty per cent of the campers used gasoline for boats, and the boat launching sites, and 94 per cent stated that these facilities were unavailable in their camping area. Only one-fifth of the campers used boat rentals and 96 per cent said rentals were not available in their area. It seems that all facilities, except for the toilets, which could be improved, were desirable. Campers also wanted more firewood supplied in the campgrounds and more boat launching sites.

As the above discussion brings out, there is a high degree of similarity in opinions among campers from the different campgrounds. It did not prove useful to distinguish any grouping of campgrounds, other than that of island and mainland sites.

The only campground which stands out as markedly different is Osprey, probably because of the small size of the sample. Osprey was the least used of the mainland campgrounds and it had the smallest number of sites. It can be contrasted with Indian Creek which is the largest, and one of the most highly used mainland campgrounds. Osprey was one of two campgrounds where the sample population had been coming to the area for less than five years while a number of Indian Creek campers had been coming to the area for more than 25 years. At Osprey all of the sample was in favor of user fees and two-thirds were in favor of reservations; at Indian Creek almost all campers were in favor of the user fee but only one-quarter were in favor of reservations. None of the Osprey sample was influenced by the length-of-stay limit while 25 per cent of the Indian Creek sample was. There is no beach at Osprey and half of the sample found "no beach" acceptable. Indian Creek has a large beach and only one-third found "no beach" acceptable. Privacy was important to all campers sampled at Osprey while at Indian Creek privacy was important to only three-quarters of the campers. Osprey was the only campground where none of the sample had boats; at Indian Creek 26 per cent of the sample had boats. All campers in both campgrounds said they would return to their campsites on another visit to the area.

All the campgrounds could be compared in this manner but meaningful differences would not be revealed. Comparing the weekend sample with the weekday sample is more enlightening, and could have more significance for planning purposes. The weekday sample is willing to pay more for reservations, is more influenced by the length-of-stay limit and is more in favor of the length-of-stay limit being enforced. The weekend sample would be more likely to move to a different campsite if privacy was invaded, and are less willing to walk to the beach from the campsite.

The most useful comparison of all is that between the mainland and the island campgrounds, which exhibit strikingly different characteristics. The mainland campgrounds are accessible by car; they have more sites per campground, and these are well designated for use; they have few sites on the waterfront; user fees are levied; camper services are provided, such as running water and firewood; and usually there will be more people in a given area in the mainland campgrounds than in the island campgrounds. The island campgrounds are accessible only by boat; they have fewer sites and these sites are not well marked; most sites are located along the shoreline; no user fees are charged; and the services provided by the Forest Service are limited to toilet facilities and garbage collection. The island group had the largest opposition to user fees and half of the campers were opposed to the length-of-stay limit enforcement. None of the campers on the islands would be willing to walk for more than two minutes from their campsite to get to the water. All stated that there must be no drop-off of the bottom near the shoreline, and a sand beach was considered necessary by 80 per cent of them.

At least two-thirds, and usually more than 90 per cent, of the mainland campers were in favor of user fees, and two-thirds of this group were in favor of enforcing the length-of-stay limit. This group is willing to walk further to get to the water; at least 50 per cent, and usually more than 75 per cent, of the campers would be willing to walk for at least five minutes to get to the water. A sand beach would be popular with the mainland group but less than 65 per cent of those in each mainland campground felt that it was necessary.

All of this suggests that mainland campers are different from island campers, which leads to the basic management question, "Should both groups be catered to?"

SUMMARY

This summary provides a brief comparison between the cottager's and camper's views on similar questions in the questionnaires. Only direct comparisons between cottagers and campers have been carried out; no attempt has been made to compare results from the various campgrounds with either state or federal lessees.

Cottagers have been coming to the area for an average of 26.2 years while campers have been coming to Priest Lake for an average of 7.5 years. Campers are a highly mobile group and this may explain some of the difference; also camping has increased in popularity in recent years.

When asked what they looked for in site characteristics, the largest response from both groups was a site near the waterfront; 38.8 per cent of the cottagers and 45.9 per cent of the campers mentioned this. Privacy as a factor to be considered in site selection accounted for 14.5 per cent of the cottager response and 11.7 per cent of the camper response.

The question about the choice between sandy and stony beaches produced some differences in opinion. Cottagers who felt the site must have a sand beach represented 39.6 per cent of the sample, whereas 57.1 per cent of the campers held this opinion. Fifty per cent of the cottagers would accept a stony beach, but only 42.9 per cent of the campers were so amenable. About one-quarter of each group felt that no beach was acceptable.

The question concerning the preference for a smooth, sandy lake bottom produced an even stronger difference of opinion. Among the cottager sample, 39.6 per cent said the bottom must be smooth and sandy whereas 64 per cent of the campers felt this way. Other conditions were acceptable to 60.4 per cent of the cottagers but to only 36 per cent of the campers. Cottagers seem to be a more tolerant group towards physical site conditions, perhaps because they can build docks that make walking on a stony or weedy bottom unnecessary.

The two groups had similar views on the offshore slope. Both felt it should be gentle, though the campers (85.7 per cent) were somewhat more positive than the cottagers (72.9 per cent).

Distance from the lakeshore in terms of minutes of walking produced some variance in results between the two samples. Fifty-two per cent of the cottagers would be unwilling to walk for longer than two minutes to get to the water while only 32.1 per cent of the campers felt this way. Almost one-quarter of the mainland campers would walk for up to ten minutes to get to the water while just 2.1 per cent of the cottager sample would be willing to do this.

The question about access by boat, road, or both also produced different responses. Three-quarters of the campers felt that access by both types of vehicles was necessary but only half of the cottagers felt this way. More than one-third of the cottagers felt road access only was preferable whereas only 4.6 per cent of the campers felt this way. The two groups had similar views on "boat access only."

The final comparison between the groups concerns the likes or dislikes the respondents have for the shore area. The responses are much higher for the cottager survey but this is probably the result of the mail questionnaire, the format of which encouraged the sample to answer and register a response for all of the choices. Only three characteristics were comparable, and these were all registered as "likes" about the lakeshore -- the beach, the scenery, and the lack of crowding. Cottagers who liked the beach represented 62.5 per cent of the sample, whereas 41.1 per cent of the campers liked the beach. The largest group of cottagers (95.8 per cent) liked the scenery at Priest Lake; only one-third of the campers mentioned the latter quality. Lack of crowding was enjoyed by 79.2 per cent of the cottagers, but only 26.8 per cent of the campers made mention of this factor.

In conclusion, it seems that the cottagers are more tolerant of physical conditions that are less than ideal. In particular, they are prepared to accept poorer beaches and offshore areas than are the campers. On the other hand, immediate access to the water is more important to them than it is to the campers. The cottagers are also more bothered by the present level of use of Priest Lake and its vicinity.

CHAPTER VI

CONCLUSION

The purpose of this thesis was to provide information about Priest Lake through analyses of the potential of the shoreland for recreation, its jurisdictional controls and present use, and the opinions of the lakeshore users who locate on the public lands, in an attempt to provide some of the data that are necessary to develop planning goals for the area. This information has been presented and assessed in Chapters II, IV and V and now must be integrated and then compared with management plans for the area, discussed in Chapter I, before recommendations can be proposed. An important consideration is that use of the Priest Lake area is increasing and even greater demands are being placed upon the presently developed areas.

The jurisdictional controls and the rating of the land for recreation potential create basically static patterns. On the one hand, state and federal ownership patterns will not change unless some of the private holdings are offered to them, which is unlikely; on the other, the land will not have its physical potential measurably changed unless it is altered by man. Present use patterns of the public lands could be changed, however, to accommodate planning proposals that might call for tracts of land to be used by the general public rather than by private lessees or to be put to intensive rather than extensive use. In this way present land use can be considered a dynamic factor. The camper and cottager opinions are also dynamic factors because they represent the wants, needs, attitudes, and values hald by that segment of society for whom the planning is being developed. Growth in the demand for space is also a dynamic factor.

RESULTS FROM THE STUDY

Land Use and Jurisdiction

The first area of research for the thesis concerned land use and jurisdiction over the land. The shoreland of Priest Lake was separated into areas of recreational and non-recreational use. The land used for recreational purposes (49.3 miles) covers all but six miles of the Priest Lake shorelands (55.3 miles). Since management plans do not foresee further development of the Upper Lake and Thorofare for overnight use, they have not been considered here.[1] Twenty-seven miles of the shoreline is already used for recreation and, of this developed zone, 43 per cent belongs to the State of Idaho, 24 per cent to the Forest Service, and the remaining 33 per cent is privately owned.

Canada Land Inventory

The second stage of the thesis involved the application of the Canada Land Inventory for Outdoor Recreation to Priest Lake. This provided an analysis of the potential use of the shoreline according to the physical capabilities of the land. Capability of the shorelands for recreational use is high: 87 per cent of the total lakeshore sites (279) were placed in capability classes 1, 2, 3 or 4. At the same time, though, some of these land units could be used more intensively. Cottage sites which are being leased on public lands that have a very high to moderate capability for use (Classes 1 through 4) could be put to more intensive use if they were converted to public campgrounds or day-use areas.

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[1] Management objectives state that the area is to be preserved in a near natural state and is to be used for public recreation under natural conditions. No buildings are to be constructed in this area except for sanitary facilities. Plans for the area intend to encourage day use and have overnight camping outside the area at the north end of Priest Lake. This information was taken from Interim Management Plan, Upper Priest Lake Scenic Area, (date unknown), p. 4.

Where the capability class is a 1 or a 2, the removal of cottages and the subsequent replacement with campgrounds could ease the demand for more public use space and perhaps allow some areas with high or even moderate capability for use to remain undeveloped.

There are 17 Class 1 sites on the lake, all of which are in use. Eight of the sites are in private use as cottage areas at present, but half of them are under either state or Forest Service jurisdiction and have the potential for future public use.

Fifty-four Class 2 sites were designated along the shoreland; 15 of these are not in use and 86 per cent of those come under the jurisdiction of either the Forest Service or the State of Idaho.

Class 3 sites are found in 96 locations along the shoreline; 35 per cent of these (26 sites) are not in use, the majority of them belonging to the National Forest Service. Twenty-five of the Class 3 sites are located north of the Twin Islands.

Capability Class 4 has been assigned to 27 locations on the lakeshore; 43 of these are not in use at the present time and 80 per cent of the unused sites come under the jurisdiction of either the Forest Service or the State of Idaho.

The remaining 35 sites belong to either capability Class 5 or 6. They can not withstand even moderately intensive use so they will not be considered as future recreation sites. However, they add much to the recreational quality of the Priest Lake area because they separate areas of more intensive use, and they are visually pleasing.

Public Use Potential

Tables 47, 48, 49 and 50 have been compiled to indicate the "development potential for public use" of the Priest Lake shorelands. This development potential has been arrived at by considering the present land use, the ownership of the land, the inventory rating for the land, and the location of the site along the lakeshore. In the determination of development potential of the lakeshore units for each of the four capability classes considered, present land use and ownership of the land were weighted equally. The development potential has been designed to exclude fragmented private ownership, with the exception of mixed Diamond and State of Idaho ownership, and the Diamond International Class 1 and 2 sites, because it is presumed to be unlikely that private owners will sell their land for public use.

Land units that are presently in use and that have been rated as having "development potential for public use" usually undergo a change in land use to make them available to the public. Most of these areas are now used for private cottages; these will have to be changed to camping or day use areas if they are to accommodate the public. Land owned by the State of Idaho and the National Forest Service that is presently developed for private cottage use is generally considered to have potential for public development because the land is on lease to the cottagers and could be cleared of improvements to make way for public use. On the other hand, if the land is already in use as public campgrounds or as day use areas, it has not been considered to have development potential because it is already in intensive use which can not be effectively developed further.

Those land units that are rated as "not in use" are those which do not have developed use of any type. Although there might be a single cottage in a long stretch of Class 2 or Class 3 beach, it would still be considered not in use. People can and do make use of these areas but there are usually no permanent housing structures on the sites; these sites can be considered under-used. When these sites have a "development potential for public use" rating, development would not necessarily be accompanied by a change in use, but rather by an intensification of use, such as a change from occasional primitive camping to a campground with facilities.

Development for public use is unlikely when the site can not absorb increased use because of physical limitations or when the area has been designated for other uses such as natural areas or scenic areas, as is the Upper Priest Lake. Sites located along the shore of the Teepee Creek Natural Area on the west side of the lake have been considered undevelopable because the area has been set aside for the study of the western white pine and it is not to be used by the public.

When the land is presently used for cottaging, and the inventory subclasses indicate that it has the potential for lodging rather than for organized camping, it is unlikely that the tract will be considered for public campground use. This consideration of the CLI subclasses is of a secondary nature but in shoreland areas where the subclass ratings were inappropriate for intensive public use, development has been considered unlikely.

Site location has been given the least consideration in determining the "development potential for public use," and management proposals for those shoreline tracts that are slated for future development have not been taken into consideration.

All the Class 1 beaches on the lake are in use, but Table 47 indicates that ten of them have "development potential for public use." Seven of these beaches are located in resort, cottage or campground zones, while three beaches are in an undeveloped recreational zone at the north end of the eastern shoreline.

Table 48 indicates that there are 25 Class 2 sites on Priest Lake that have "development potential for public use." This is 48.1 per cent of the total Class 2 sites. Sites at 15 Forest Service and eight state locations could be developed for public use; this is about 43 per cent of the Class 2 sites on the lake. Fourteen of these sites now have private cottages on them.

Table 47

DEVELOPMENT POTENTIAL FOR CLASS 1 SITES

	Ownership						
Sites	NFS	State	Small Holdings	Diamond International	State/ Small Owners	State/ Diamond	Totals
Development potential for public use	1	4	2[1]	1	–	2	10
Development for public use unlikely	–	–	3	–	1	–	4
Developed campgrounds	2	1	–	–	–	–	3

[1] There are resorts in these areas; the public is entitled to use sections of these sites.

Table 48

DEVELOPMENT POTENTIAL FOR CLASS 2 SITES

	Ownership						
Sites	NFS	State	Small Holdings	Diamond International	State/ Small Owners	Coolin	Totals
IN USE	17	8	11	1	1	1	39
Development potential for public use	11	3	–	–	–	–	14
Development for public use unlikely	1	5	11	1	1	1	20
Developed campgrounds	5	–	–	–	–	–	5
NOT IN USE	6	7	–	2	–	–	15
Development potential for public use	4	5	–	2	–	–	11
Development for public use unlikely	2[1]	2[1]	–	–	–	–	4

[1] These are sites on the Upper Lake and will not be further developed.

Four of the Forest Service and five of the state sites were not in use at the time fieldwork was undertaken. If only these sites are considered for future development, 16.6 per cent of the Class 2 sites on the lake have potential that is as yet undeveloped. Two of these sites are located in the cottage use zones, two in the island zone, and five in undeveloped recreational zones. Two of the five are located on the west shore, and three on the east shore.

Capability Class 3 has 96 sites, and 37 sites (about 39 per cent) have "development potential for public use" (Table 49). Thirty-five sites are located on National Forest or State of Idaho lands that could be developed for public use; eight of those sites are in leased lot areas.

When the field survey was completed, the Forest Service had 20 Class 3 sites and the State of Idaho had two sites not in use that could be considered as locations for future development. These sites make up about 28 per cent of the total Class 3 sites on the lakeshore. Six of the sites are located in the island use zones, two sites in the resort, cottage, campground use zones, one site in the cottage zone, and 13 sites in the zones of undeveloped recreational use. The Forest Service controls 12 of the 13 sites.

Capability Class 4 had 20 sites with "development potential for public use," this is about 26 per cent of the total sites (Table 50). Seventeen of these sites belong to the Forest Service and the State of Idaho. Eight of the sites are located in the zones of undeveloped recreational use, five of them come under federal jurisdiction and three of them under state jurisdiction. Four of the sites are in cottage, resort, campground use zones (three of these are Forest Service sites), four are in cottage zones (all State of Idaho sites), and one is in the island zone.

Figures from the previous four tables indicate that 92 of the 244 sites in Classes 1 through 4, or about 38 per

Table 49

DEVELOPMENT POTENTIAL FOR CLASS 3 SITES

Sites	Ownership								
	NFS	State	Small Holdings	Diamond International	NFS/ Small Owners	State/ Small Owners	State/ Diamond	Coolin	Total
IN USE	17	20	17	3	2	1	1	2	63
Development potential for public use	8	5	-	-	-	-	-	-	13
Development for public use unlikely	7	15	17	3	2	1	1	2	48
Developed campgrounds	2	-	-	-	-	-	-	-	2
NOT IN USE	21	5	2	5	-	-	-	-	33
Development potential for public use	20	2	-	2	-	-	-	-	24
Development for public use unlikely	1	3	2	3	-	-	-	-	9

Table 50

DEVELOPMENT POTENTIAL FOR CLASS 4 SITES

	Ownership							
Sites	NFS	State	Small Holdings	Diamond International	NFS/ State	State/ Small Holdings	Coolin	Total
IN USE	14	9	6	1	2	1	1	34
Development potential for public use	4	2	-	-	-	-	-	6
Development for public use unlikely	8	7	6	1	2	1	1	26
Developed campgrounds	2	-	-	-	-	-	-	2
NOT IN USE	24	10	1	6	-	2	-	43
Development potential for public use	7	4	-	1	-	2	-	14
Development for public use unlikely	17	6	1	5	-	-	-	29

cent, have development potential for public use. Forty-two of these sites or 17.2 per cent of the total sites are presently not in use and are under the jurisdiction of the Forest Service and the State of Idaho. Table 51 indicates that there is a higher percentage of sites with development potential for public use among the Class 2 and Class 3 than there is among Class 1 and Class 4 sites. It is useful to note that the number of sites with development potential does not increase with the lower capability classes. Class 1 sites would be the most likely ones to be utilized because they can withstand intensive annual use and have very high capabilities for outdoor recreation. These sites would also have the least restrictive physical qualities of all the sites on the lakeshore. Class 2 and Class 3 sites have a high to moderately high capability for outdoor recreation. Because these sites do not measure up to Class 1 physical standards, they might not have been employed for public use. These sites, however, have only minor physical limitations and nearly all of them, in use at the present time as cottage areas, have been recommended as having development potential for public use. Just over one-quarter of the Class 4 sites have development potential for public use. This low proportion results from the physical limitations of the sites, as well as from their having established private uses which can not sustain any increase.

Development priorities will be set for these sites according to the planning goals for the future use of the lakeshore. If the goal is to accommodate as many people as possible in those areas that will sustain high to very high annual use, the sites from capability Classes 1 and 2 should have the first priorities for development. If this type of site is to be developed without improving access to the lakeshore, those sites along the southern end of the lakeshore will have the highest priority. If the aim is to provide areas for public use on a small scale, and to get away from large campgrounds, the sites in the Class 4 or perhaps the Class 3 groups can be developed. If retention of as much of the shoreland as possible in its natural condition is the goal, only those sites which are already in use would be considered. The priorities for development are entirely dependent on the goals, and the policies of the governing bodies towards achieving these goals.

Table 51

A COMPARISON OF POTENTIAL USE

Sites	Capability Classes 1	2	3	4
Total number	17	54	96	77
Development potential for public use[1]	5	25	37	20
Percentage of sites with development potential for public use[1]	30	46	39	26

[1] These headings include only those sites under the National Forest Service and State of Idaho jurisdictions.

These ratings of development potential have been arrived at without considering the final goals for the area, and their final worth depends on the plans which should follow.

Camper and Cottager Surveys

The third section of the thesis dealt with camper and cottager surveys. There were differences between groups as well as within groups. The most useful comparison discerned among the campers seems to be the differences between mainland and island groups. The mainland campers were highly in favor of fees and enforcement of the length-of-stay limit. They felt that location along the shoreline was not necessary but that sites close to the water would be preferred over those further away. These campers stated that sand beaches were nice but not necessary. The island campers voiced strong opposition towards user fees and were opposed to the length-of-stay limit enforcement. Island campers felt that location along the shoreline was a necessity as was a sandy beach. They also said that there could be no drop-off near the shore.

The only method of differentiation that was possible among the cottagers was that of comparing and contrasting opinions of the state and federal lessees. The differences between the two groups are not marked, which may be a result of the small sample size. Sample size also restricted comparisons on other bases.

The state lessees were more concerned with privacy than were the federal lessees. They also wanted hot weather to accompany the other stipulated conditions desirable for swimming. Federal lessees were willing to walk longer distances to get to the water. They would accept stony beaches and public use of their waterfronts more readily than would the state lessees.

The cottager and camper groups enjoy similarities as well as differences. Both groups are concerned with the same site characteristics; a location near the waterfront and enough vegetation to provide some privacy for the site. A sandy beach and lake bottom coupled with clean water were also desired. A gentle offshore slope was important. Both groups enjoyed the scenery and the lack of crowding.

The cottagers indicated that they were more likely to put up with adverse conditions. Stony beaches and rocky bottom would be acceptable to this group. However, campers stated a willingness to walk farther to get to the water.

When areas are going to be developed for private cottages or for campgrounds it is important to consider what the user groups want and expect in terms of physical and social qualities. The physical capabilities of the various sites, as determined by the CLI, can be compared with the expressed needs of the people for whom the area is being developed so that it can be determined whether or not those people will use the area after development. When the characteristics that are desired by the campers and cottagers at Priest Lake are compared with the capability ratings, it appears that all sites developed for use in Class 1 and Class 2 areas would be accepted. But as the recreational capability drops, so do the numbers of people willing to use the areas.

If sites were developed away from the shoreline, the number of people coming to the area would depend upon their willingness to walk to the water and to locate out of sight of the lake. A site developed for use in a treeless area would be popular with very few campers and it would also be difficult to interest people in taking out a lease for a cottage site in that location as long as other locations were available. The different groups at the lake have stated preferences for site locations and when the site is lacking in one or more of these requirements these people will look elsewhere. For example, island campers would not be willing to use a Class 3 or Class 4 site with a rocky beach and lake bottom as they stated that the beach must be sand and consequently would not use these sites if others were available. It is realized that some people will put up with almost any physical site qualities even if none of them is approved of by the user. However, if better sites can be had, they will be used, even if it means crowding and a lack of privacy and peace.

The development of sites depends upon the intended use for the area. If the area is to be used for private cottages, or for public camping, whether the camping development is a huge campground with 75 sites or just a primitive area big enough for one or two parties, plays an important role in decision-making that determines whether or not a Class 4 site or a Class 2 site will be developed. The surveys indicated that developing a site in an area without a sandy beach and lake bottom, with a steep backshore slope, and not enough vegetation for privacy, would meet with opposition from area users. These people would look for the desired qualities in other areas before coming to this one.

In concluding the section on the camper and cottager surveys it should be noted that the cottagers as a group feel that they were more aware of the environment than were the campers, and they profess to be more sensitive and responsive to problems in the area such as pollution and noise, and especially to the increasing use of the lake and its vicinity.

If this is considered as a conflict arising between the two groups then there could be implications for planning, especially if the cottagers were required to give up their lots for the development of campgrounds. Cottagers might not want to live between two camping areas because the improved access to these areas could bring dust and noise and thus reduce their own privacy. If the cottagers are going to continue to be able to lease their lots, attention must be given to their needs before development occurs.

The campers did not mention any displeasure with the cottagers. It is more often the case that the resident population finds fault with the transients. Perhaps, therefore, a discussion about care of the lakeshore area could be introduced into the nature talks given in the campgrounds.

INTEGRATION OF INFORMATION

The State of Idaho has the following sites on undeveloped recreational land that is not presently in use: Class 1 -- one site, Class 2 -- three sites, Class 3 -- one site, and Class 4 -- four sites. One Class 2, one Class 3, and four of the Class 4 sites are located in the use zone north of East Twin Island.

The National Forest Service has a number of sites on undeveloped recreational land that are not presently in use: Class 2 -- six sites, Class 3 -- 12 sites, and Class 4 -- six sites. Both Class 2 sites, seven of the Class 3 sites and four of the Class 4 sites are located in the undeveloped recreational use zone which begins north of West Twin Island.

Campers and cottagers have some strong preferences about site location and these should be considered if new sites of any kind are going to be developed. Also, the campers feel that the site must be accessible by both boat and car, and that access by car is the more important of the two. The cottagers do not feel that access by both methods is that important, and some would prefer boat access only.

The Forest Service plans to keep the area north of West Twin Island as a natural environment area and does not intend to grant leases for commercial public establishments or cottages. If campground sites are developed in the area, and the opinions of the campers are heeded, the Forest Service must consider the problem of road access. The new highway to Beaver Creek provides general access to the area but would not satisfy the campers because of its distance to the lakeshore. Boat access is available and primitive camping has been carried out in this area for some time. If road access is not improved, perhaps those people who camp on the islands would make use of the new sites. Mainland camping with boat access only is not the same as island camping, and a lack of privacy on the islands might be the only stimulus to get campers to use the mainland areas.

The Forest Service does not plan to allow new cottage leases along the lakeshore. In fact, the reverse is proposed; if the need arises, some cottages will be removed from areas south of West Twin Island to accommodate public access to the lakeshore. There are leased cottage lots on Class 1 and 2 beaches in heavily used areas, such as Luby Bay, where the leases could be terminated and the cottages removed.

The State of Idaho considers all of its shorelands along Priest Lake in the same manner. There are a number of undeveloped areas along the shoreline which could be put to better use as cottage sites or perhaps as resort complexes rather than as campgrounds because of physical limitations. Under the endowment plan new cottage or resort leases could be granted. At present there is limited access to the east shore and the road needs major improvements if development of any type is going to take place.

Upper Priest Lake and the Thorofare are an important part of the recreational attraction of the Priest Lake area. Use of these areas can not be ignored, but as management plans indicate, there will be no recreational development except for a few additional day-use sites. These sites should be developed on the north shore of the Upper Lake as this is where sites with higher class ratings for recreational use are located.

RELEVANCE FOR PLANNING

The information collected in this thesis is relevant to planning policies because it provides the data needed to develop planning goals. The goals can be arrived at from the information presented in the capability and present use matrix, and through the consideration of social factors which are the result of user surveys. From the data, the wants and needs of the people in the area under consideration become apparent and on the basis of the values held by the planners, goals are formulated. However, after the data have been collected and before the goals are formulated, questions must be considered and precise objectives defined, the objectives becoming the goals.

Management questions arising from this information are concerned with the types of development, areas for development, and new means of access to these areas. Questions also arise that concern over-use of present facilities. Some of these questions will be considered and suggestions for relief of the problems will be offered. Many of the following questions were previously raised in Chapter IV.

Should the governing bodies supply recreation sites on demand or should they operate on the principle that crowding will lessen the recreation experience and thereby reduce the demand over a period of time? One suggestion is that recreation sites not be supplied on demand even if the economic situation is feasible. Increased noise pollution and sewage problems would result and also lower the quality of the recreation experience. However, operating under the principle that overcrowding will sufficiently diminish the numbers of people coming to the area would be faulty reasoning. There is a wide margin between ecological and social tolerance; people can stand a great deal more than the environment can. A few well chosen areas for new development could help spread out the numbers of tourists in the area and lessen the ecological load on the present use sites. Steps could be taken to ensure utilization of all presently developed sites in the area and not only in the most popular campgrounds. A sign-board in the Town of Priest River at the turn-off to Priest Lake could be erected that would inform area users about the vacancy situation at the lake with the particulars given for the individual campgrounds. This would serve a useful purpose if it was kept up to date.

Another question concerns which types of users should be catered to, as different groups of recreation users have different requirements. There are three main groups: The cottage owners, the campers, and those who stay at resorts or motels. If the available land on the lakeshore is leased to cottagers, the right for access to the lakeshore, and ultimately the use of the area, is limited to a very few people. Should the general public be restricted from enjoyment and use of the lakeshore? If the campers' needs are catered to, the construction of more sites will provide greater opportunity for public use. Unfortunately, not everybody wants to camp and as numbers who enjoy camping increase so will the numbers of people who prefer resorts for their recreational visits. The beaches with the highest capabilities should perhaps be developed for use to accommodate the largest numbers of people; therefore, campground development might be the solution. The sites with slightly lower capabilities could be used for resorts, where still large numbers of people are using the area. With the increased demand for recreational space, especially on a lake such as Priest with outstanding scenery and clean water, the addition of private cottage sites would not be advantageous to the general public.

It seems possible that the State of Idaho's endowment lands could be better managed to maximize the returns to the funds by charging higher lease rates. The rate increase would not infringe upon good management. Some of the land that is now under lease has the potential for heavier use, perhaps as campgrounds. Surely these grounds could be managed in such a way as to contribute to the fund. If some undeveloped land can not withstand even moderate public use, perhaps it could be leased to cottagers. They proved to be more willing to accept physical site conditions that were less than perfect and certainly were concerned with maintaining the quality of the lake and its surroundings.

Development for an area should be in keeping with the need for it, the general plan for the area, and the type of use the area can withstand. The question arises: should all areas with a high potential for use be developed? In accordance with the above criteria for development, the decision rests upon the general plan for the area, need and potential having already been established. If the goal identified is to retain the area for primitive use, and the demand for space can be filled in another location on the lake, then the site need not be developed.

In what ways can more sites be developed while still retaining the beauty of the lakeshore and the quality of the recreational experience? Campers indicated that they would be willing to walk some distance to get to the lakeshore. Campgrounds could be developed a short distance away from the lake and the beach associated with the campground could be used as a day-use area. However, most of the campers also want to be able to see the water and would prefer to camp beside it. If a campground was developed away from the lakeshore it would have to be located in an area that would compensate for the loss of proximity to the lake or it would be under-used. Cottagers presumably would not be interested in this type of development.

Another management problem deals with the conversion of sites already in use to different uses. Is public development likely on a Class 1 or Class 2 beach that is presently used for cottaging? Will future demands for space cause either of the governing bodies to revoke leasing privileges in some locations to turn the land over to public use? The Forest Service has given notice to island permit holders that their leases will not be renewed when the present terms expire. These sites will be made into public use areas. The Forest Service has also made provision for revoking leasing privileges and turning the land over to public use. Projections for optimum use measures that are determined from goals must be made at least ten years, and perhaps 20 years in advance. The newly issued leases state that lessees must be informed at least ten years in advance and all lessees have been given until 1982 for notification. If they can foresee a need for converting from present private land use to public use they will act upon it. The State of Idaho has not considered this approach as yet but may do so after their evaluation of the lakeshore is completed. The earlier comment about managing the land in a more efficient manner could also apply here.

Is the development of sites for public use with low capability ratings worthwhile if they can withstand only moderate or little intensive use? Development can take many forms and the type of development should complement the capability of the site. Providing toilet facilities and garbage collection in an area with a Class 4 rating, along with the removal of alders from the beach, will not encourage heavy use of the area nor does it preclude use. Some people value the experience gained through camping in a small area with no major development. Low capability classes can be used successfully as long as the site limitations are recognized.

In dealing with over-crowding of present sites the question is raised: Would it be possible to rotate the use of recreational sites or possibly even campgrounds so as to give the vegetation in these areas a chance for regrowth? It would be very difficult to close off portions of a campground and be successful, once sites have been designated people tend to make use of them even if they are closed. The strain imposed on the other sites in the campgrounds through increased use would tend to reduce the quality of the campground below even its original state. The same reasoning applies to the closing of an entire campground. It would take a period of years to regenerate a vigorous ground cover, if that was damaged, and while the one campground was being reseeded, the others would suffer from overuse. Perhaps a different ground cover could be introduced, perhaps gravel in the damaged areas, or trees that were damaged could have protective covering constructed for them. Definite paths of gravel or asphalt, although not natural coverings, could be used to reroute people around the damaged areas.

An alternative method to reduce over-crowding could be to institute a reservation system for campers. This idea met with much opposition among the campers interviewed, although those who were interviewed on the weekends were more in favor of the idea. Reservations tend to remove the "gypsy" quality from camping because it would mean planning completely where every night would be spent. People who came to an area inadvertantly, would be unable to camp there, although some system could probably be arranged whereby both reserved and non-reserved sites were available.

Finally, the question concerning new means of access into the area arises. Control over access is an extremely effective management tool; if there are no roads, there is no use. If new areas are developed, new roads constructed, and old roads improved, there will be a greater possibility for increased use. Access to the area must be provided but the quality of the road to a large extent dictates the amount of traffic that it will receive. If the area is developed with rather primitive camping facilities, there is no reason to pave the road into the area; improved access would simply bring unwanted numbers of people who could cause damage. This is evident in the Beaver Creek area. The campground is not yet developed but there is a paved road leading to the site and the result is overcrowding and over-use.

From the consideration of the management questions and the data provided in the thesis it is now possible to formulate planning goals. The formulation of these goals allows appropriate courses of action to be designated. These courses of action can be evaluated in terms of the means available, the costs incurred and potential benefits. The selected courses of action can then be implemented. As re-evaluation of the environment takes place new goals can be developed, adding dynamism to the planning process.

BIBLIOGRAPHY

Abler, R., Adams, J. S. and Gould, P. 1971. Spatial Organization: The Geographer's View of the World, Englewood Cliffs, New Jersey: Prentice Hall Ltd., pp. 54-89.

Anderson, D. L. 1967 The Recreational Capability and Use of Wabamum Lake and the Eastern Half of Lesser Slave Lake, Unpublished M.A. Dissertation, Department of Geography, University of Alberta.

Booth, A. W. 1948 The Lakes of the Northeastern Inland Empire -- A Study of Recreational Sites, Bulletin No. 5, State College of Washington, Pullman, Washington: State College of Washington Press.

Brooks, L. 1961 "The Forces Shaping Demand for Recreation Space in Canada," Resources for Tomorrow, Vol. 2, Section 8, Ottawa: The Queen's Printer, pp. 957-67.

Burton, T. L. ed. 1970 Recreation Research and Planning: A Symposium, London: Allen and Unwin Ltd.

Burton, T. L. and Cherry, G. E. 1970 Social Research Techniques for Planners, London: Allen and Unwin Ltd.

Caldwell, M. M. ed. 1970 Idaho Economic Atlas, Moscow, Idaho: Idaho Bureau of Mines and Geology.

Campbell, C. 1966 "Approach to Research in Recreational Geography," Occasional Papers in Geography, B. C. Geographical Series No. 7, Vancouver, B. C.: University of British Columbia, pp. 85-90.

Canada, Government of 1965 The Canada Land Inventory (ARDA): Objectives, Scope and Organization, Report No. 1, Department of Forestry, Ottawa: The Queen's Printer.

__________ 1967 The Canada Land Inventory (ARDA): Field Manual -- Land Capability Classification for Outdoor Recreation, Department of Forestry and Rural Development, Ottawa: The Queen's Printer.

__________ 1970 The Canada Land Inventory (ARDA): Objectives, Scope and Organization, Report No. 1, Department of Regional Economic Expansion, Ottawa: The Queen's Printer.

Canada, Government of 1970 The Canada Land Inventory (ARDA): Land Capability Classification for Outdoor Recreation, Report No. 6, Department of Regional Economic Expansion, Ottawa: The Queen's Printer.

Clawson, M. 1959 Methods of Measuring the Demand for Value of Outdoor Recreation, Reprint No. 10, Resources for the Future Inc., Washington.

__________ 1962 "A Positive Approach to Open Space Preservation," American Institute of Planners Journal, Vol. 28, No. 2, pp. 124-29.

__________ 1965 "Economics and Environmental Impacts of Increasing Leisure Activities," in F. F. Darling and J. P. Milton eds. Future Environments of North America, Garden City, New York: The Natural History Press, pp. 246-60.

__________ 1971 Resources, Economic Development and Environmental Quality, University of Guelph Centre for Resources Development, Publication No. 42, Guelph, Ontario: University of Guelph.

Clawson, M. and Held, R. B. 1957 The Federal Lands: Their Use and Management, Baltimore: Johns Hopkins Press.

Clawson, M. and Stewart, C. L. 1965 Land Use Information, A Critical Survey of United States Statistics Including Possibilities for Greater Uniformity, Baltimore: Johns Hopkins Press.

Clawson, M., Held, R. B. and Stoddard, C. H. 1960 Land for the Future, Resources for the Future Inc., Baltimore: Johns Hopkins Press, pp. 1-45, 124-84, 440-76.

Dakin, J. 1960 "Thoughts on Theory-Method in the Planning Process," Plan Canada, Vol. 1, pp. 133-43.

David, E. J. L. 1968 "Lakeshore Property Values -- A Guide to Public Investment in Recreation," Water Resources Research, Vol. 4, No. 4, pp. 697-707.

Davidson, J. 1970 Outdoor Recreation Surveys: The Design and Use of Questionnaires for Site Surveys, London: The Countryside Commission.

Doolittle, W. T. 1971 Recreation Symposium Proceedings, USDA Forest Service and State University of New York, College of Forestry, Upper Darby, Pennsylvania: Northeastern Forest Experiment Station.

Douglass, R. W. 1969 Forest Recreation, Oxford: Pergamon Press, pp. 233-72.

Frome, M. 1971 The Forest Service, New York: Praeger, pp. 43.75.

Gilliam, H. 1967 "The Fallacy of Single Purpose Planning," Daedalus, Vol. 96, pp. 1142-57.

Gregory, S. 1967 Statistical Methods and the Geographer, London: Longman Group Ltd., pp. 1-143, 163-72.

Guinee, B. T. 1972 "Todays Campers and What They Want," Campground and RU Park Management, 3M National Advertising Company.

Hart, W. J. 1968 A Systems Approach to Park Planning, Morges, Switzerland: International Union for the Conservation of Nature and Natural Resources.

Hendee, J. C. 1970 "Recreational Values, Use and Management of Natural Areas," Natural Areas -- Needs and Opportunities Symposium, 43rd Annual Meeting of the Northwest Scientific Association, Proceedings, pp. 35-38.

Hendee, J. C. and Campbell, F. L. 1969 "Social Aspects of Outdoor Recreation -- the Developed Campground," Trends in Parks and Recreation, Vol. 6, No. 4, pp. 13-16.

Hodge, G. and McCabe, R. W. eds. 1968 "Land Use Classification and Coding in Canada -- An Appraisal," Plan Canada, Vol. 9, pp. 7-27.

Jaakson, R. 1970 "Planning for the Capacity of Lakes to Accommodate Water-Oriented Recreation," Plan Canada, The Town Planning Institute of Canada, Vol. 10, No. 3, pp. 29-38.

Johnson, H. A. 1962 "Private Enterprise in the Development of Outdoor Recreation," Water Resources and Economic Development of the West, Reno, Nevada: University of Nevada, pp. 15-31.

Knetsch, J. L. 1963 "Outdoor Recreation Demand and Benefits," Land Economics, Vol. 39, pp. 387-96.

Landscape Architecture Research Office, Graduate School of Design, Harvard University 1967 Three Approaches to Environmental Resource Analysis, Washington: The Conservation Foundation.

Lime, D. W. 1971 "Factors Influencing Campground Use in the Superior National Forest of Minnesota," _USDA, Forest Service Research Paper NC-60_, St. Paul, Minnesota: North Central Forest Experiment Station.

Lime, D. W. and Stankey, G. H. 1971 "Carrying Capacity: Maintaining Outdoor Recreation Quality," in _Recreation Symposium Proceedings_ USDA Forest Service, Upper Darby, Pennsylvania: Northeastern Forest Experiment Station, pp. 174-84.

Lucas, R. C. 1964 "Wilderness Perception and Use: The Example of the Boundary Waters Canoe Area," _Natural Resources Journal_, Vol. 3, No. 1, pp. 394-411.

__________ 1970 "User Evaluation of Campgrounds on Two Michigan National Forests," _USDA, Forest Service Research Paper NC-44_, St. Paul, Minnesota: North Central Forest Experiment Station.

Lucas, R. C. and Oltman, J. L. 1971 "Survey Sampling Wilderness Visitors," _Journal of Leisure Research_, Vol. 3, No. 1, pp. 28-43.

McCutcheon, R. P. W. 1966 _Problems and Techniques of Recreational Capability Classification_, Unpublished B. A. Dissertation, University of Western Ontario.

McLoughlin, J. B. 1969 _Urban and Regional Planning: A Systems Approach_, London, England: Faber and Faber.

Morrill, R. L. 1971 _The Spatial Organization of Society_, Belmont, California: Duxbury Press, pp. 1-21.

Moser, C. A. 1958 _Survey Methods in Social Investigation_, London: Heinemann Educational Books Ltd.

Nelson, J. G. and Scace, R. C. eds. 1968 _The Canadian National Parks: Today and Tomorrow_, Vols. I and II Studies in Land Use History and Landscape Change, National Parks Series No. 3. Calgary, Alberta: University of Calgary, pp. 53-94, 867-940.

Nowicki, J. J. 1969 _Recreational Capability and the Use of Some North-Central Alberta Lakes_, Unpublished M. A. Dissertation, Department of Geography, University of Alberta.

Oppenheim, A. N. 1966 _Questionnaire Design and Attitude Measurement_, New York: Basic Books Inc., pp. 24-80.

Outdoor Recreation Resources Review Commission, 1962 *The Quality of Outdoor Recreation as Evidenced by User Satisfaction*, Study Report 5 by Department of Resource Development, Michigan State University, Washington: U.S. Government Printing Office.

__________ 1962 *Water for Recreation -- Values and Opportunities*, Study Report 10 by United States Geological Survey, Washington: U. S. Government Printing Office.

__________ 1962 *Federal Agencies and Outdoor Recreation*, Study Report 13 by the Frederic Burk Foundation for Education, San Francisco State College, Washington: U. S. Government Printing Office.

__________ 1962 *Multiple Use of Land and Water Areas*, Study Report 17 by J. Shankin, Washington: U. S. Government Printing Office.

__________ 1962 *National Recreation Survey*, Study Report 19 by A. L. Ferris assisted by B. C. Churchill, C. H. Procton, L. E. H. Zaaove, Washington: U. S, Government Printing Office.

__________ 1962 *Trends in American Living and Outdoor Recreation*, Study Report 22 -- a group of essays, Washington: U. S. Government Printing Office.

__________ 1962 *Prospective Demand for Outdoor Recreation*, Study Report 26 by Commission Staff, Washington: U. S. Government Printing Office, 1962.

__________ 1962 *Outdoor Recreation in Literature: A Survey* Study Report 27 by the Librarian of Congress, Washington: U. S. Government Printing Office.

__________ 1962 *Outdoor Recreation for America*, Washington: U. S. Government Printing Office.

Patmore, J. A. 1970 *Land and Leisure in England and Wales*, Problems in Modern Geography, London: David and Charles, pp. 43-74.

Rand-McNally 1973 *Commercial Atlas and Marketing Guide*, 104th edition, New York: Rand-McNally and Co., pp. 184-89.

Reid, R., Troxel, C. O. and Montgomery, D. V. No date *Interim Management Plan, Upper Priest Lake Scenic Area*.

Sabine, R. D. 1968 Pigeon Lake Summer Cottage Shoreland Use, Unpublished M. A. Dissertation, Department of Geography, University of Alberta.

Savage, C. N. 1967 Geology and Mineral Resources of Bonner County, County Report No. 6, Moscow, Idaho: Idaho Bureau of Mines and Geology, pp. 1-18, 33-38, 56-63, 98-99.

Schiff, A. L. 1966 "Outdoor Recreation Values in the Public Decision Process," Natural Resources Journal, Vol. 6, No. 4, pp. 542-59.

Shafer, E. L., Jr. 1969 "The Average Camper Who Doesn't Exist," USDA Forest Service Research Paper, NE-142, Upper Darby, Pennsylvania: Northeastern Experiment Station.

Shafer, E. L., Jr. and Hamilton, J. F., Jr. 1967 A Comparison of Four Survey Techniques Used in Outdoor Recreation Research, Upper Darby, Pennsylvania: Northeastern Forest Experiment Station.

Stankey, G. G. 1971 "Myths in Wilderness Decision-Making," Journal of Soil and Water Conservation, September-October, pp. 184-88.

Symington, D. F. 1968 "Land Use in Canada -- Canada Land Inventory," Canadian Geographical Journal, Vol. 76, No. 2, pp. 44-45.

Taylor, G. D. 1968 "Demand for Recreation -- An Essential Tool for Resource Planning," in J. G. Nelson and R. C. Scace eds., The Canadian National Parks: Today and Tomorrow, Vol. II, Calgary, Alberta: University of Calgary, pp. 878-85.

Taylor, G. D. and Thomson, C. W. 1966 "Proposed Methodology for an Inventory and Classification of Land for Recreational Use," Forestry Chronicle, Vol. 42, pp. 153-59.

Thorsell, J. W. 1967 "Wilderness Recreational Use: Waterton Lakes National Park," Recreational Research Report 24, National Parks Services, Department of Indian Affairs and Northern Development, Ottawa.

Trombley, G. C. 1971 Commissioner, Endowment Lands of Idaho, Boise: Idaho Department of Public Lands.

Tunnard, C. and Pushkarev, B. 1963 Man Made America: Chaos or Control? New Haven and London: Yale University Press, pp. 337-400.

Uleck, R. B. 1971 "The Challenge of Recreation Planning: Methodology and Factors to Consider," in Recreation Symposium Proceedings, Upper Darby, Pennsylvania: Northeastern Forest Experiment Station, pp. 200-11.

United States Government, Department of Agriculture -- Forest Service 1967 Priest Lake Recreation Area Plan, Washington: U. S. Government Printing Office.

__________ Department of Agriculture -- Forest Service. No date. Multiple Use -- Part One, Kaniksu National Forest, Sandpoint, Idaho.

__________ 1972 Forest Service Handbook -- Multiple Use Management Guide for Northern Region, Missoula, Montana.

__________ Executive Office of the President, Bureau of the Budget 1969 Household Survey Manual, Washington: U. S. Government Printing Office.

Wagar, A. 1964 The Carrying Capacity of Wildlands for Recreation, Forest Science Monograph No. 7.

Weiss, R. S. 1968 Statistics in Social Research -- An Introduction, New York: John Wiley and Sons Inc.

Wolfe, R. I. 1951 "Summer Cottages in Ontario," Economic Geography, Vol. 27, pp. 10-32.

__________ 1964 "Perspective on Outdoor Recreation: A Bibliographical Survey," Geographical Review, Vol. 54, No. 2, pp. 203-38.

APPENDICES

APPENDIX A

FIELD SHEET FOR CLI SITES

Location:

Length of Beach:

Backshore Slope:

Offshore Gradient -- at 30 feet:

at 50 feet:

Texture of Beach Materials:

Comments:

Location:

Length of Beach:

Backshore Slope:

Offshore Gradient -- at 30 feet:

at 50 feet:

Texture of Beach Materials:

Comments:

Location:

Length of Beach:

Backshore Slope:

Offshore Gradient -- at 30 feet:

at 50 feet:

Texture of Beach Materials:

Comments:

APPENDIX B

COTTAGER QUESTIONNAIRE

PROFILE DATA

How long have you been coming to the Priest Lake area?

For how many of these years have you owned a cottage on Priest Lake:

Were you familiar with the Priest Lake area before buying or building a cottage here?

How many days a week do you spend at your cottage during the summer? (from June 1st to September 1st)

QUESTIONS

1. Is your cottage site leased on a term permit or renewed on a yearly basis?

2. If it is leased on a term permit, how many years was the original lease? How many years are remaining on the lease?

3. Did the government controls regarding lease permits influence your location? Why or why not?

4. Why did you purchase the lot you now have?

5. Why did you locate at this site?

6. What do you look for in a cottage site?

7. Does the cottage site have to have a sand beach or is a stony beach acceptable?

8. Is no beach acceptable?

9. Should the bottom be a smooth sandy one, or are other conditions acceptable?

10. Should the bottom have a gentle slope or can if drop off quickly?

11. What kind of conditions are desirable for swimming?

12. Does the site have to have direct access to the water?

13. How far from the water would you be prepared to have a cottage? (a 1-2 minute walk, 3-5 minute walk, or a 5-10 minute walk)

14. Should the water frontage be available for public use with road access?

15. Should the cottage site have road access, or should there be some sites which are accessible only by boat?

16. Should the cottage site be in the trees or in the open?

17. Do you feel that yearly use of the lakeshore is
(a) increasing
(b) decreasing
or (c) remaining about the same during the summer season?

18. How do you feel about the (a), (b), or (c) (answer from the above question) use of the lakeshore?

19. Is there anything about the Priest Lake shore area in general that you particularly like or dislike?

Nothing
Everything
Scenery
Lack of crowding
Beach
Fishing
Crowded
Facilities
Cleanliness
Dirtiness
Noise
Quiet
Remote, hard to reach

Like ____________________ Dislike ____________________

(please fill in with the numbers)

If there is anything that you can think of that you like or dislike which is not listed, please write it down.

If you have any comments or ideas that you feel would be useful please write them down.

APPENDIX C

CAMPER QUESTIONNAIRE

PROFILE DATA

Is this your first visit to the area?

If this is not your first, for how many years have you been coming here? (one, less than three, 4-10 years, more than 10 years)

How many days have you spent in the area during this visit?

Do you have a boat? What type?

QUESTIONS

1. Generally speaking what do you think of the present development of the Priest Lake area?
    - Underdeveloped
    - Overdeveloped
    - Just about right

2. Generally speaking, what do you think of the number of people using this area?
    - Too many people
    - Just about right
    - Would be all right with more people

3. Do you think that your group will visit this campsite again?

    Yes No Maybe

4. If your answer is no or maybe

   Was your group not satisfied with the campsite?

   Liked the site but felt it too hard to reach.

   Liked the site but preferred to visit new areas.

   Other

5. Are you in favor of the user fees now charged in the Priest Lake area campgrounds?

   Yes No Why?

6. Do you think the public should be able to reserve recreation sites?

   Yes No

7. Would you be willing to pay extra to have a recreation site reserved?

   Yes No No opinion

8. When fees are charged, should the price increase with the quality of the facility provided?

   Yes No

9. These types of facilities are available in the Priest Lake area.

   Water supply
   Toilets
   Tent or trailer sites
   Fireplaces
   Firewood
   Tables
   Boat launching areas
   Signs and information
   Rentals (boats, etc.)
   Campground roads
   Hiking trails
   Gasoline for boats

   Which of these do you use?

10. Which of these facilities are available in your camping area?

11. Of the facilities available in your camping area and in the Priest Lake area, which are not desirable?

12. Is there anything about the Priest Lake shore area in general that you particularly like or dislike?

Nothing
Everything
Scenery
Lack of crowding
Beach
Fishing
Crowded
Facilities
Cleanliness
Dirtiness
Noise
Quiet
Remote, hard to reach

13. Is there anything about this campsite you particularly like or dislike?

14. Did you have a preference for a campsite when you first arrived?

Yes No

15. If none of the sites had been occupied when you first arrived what would be the reason for your selection of a campsite?

16. Does the 10 day length-of-stay limit in the forest service campgrounds influence your vacation plans?

Yes No Why?

17. Do you feel the limit should be strictly enforced?

Yes No Why?

18. Have you changed the location of your campsite since the beginning of your visit at Priest Lake?

    Yes No

19. If yes, which campsites have you been to. (Start with the 1st location and then the 2nd and so on)

20. Why did you move?

21. If your move was the result of the 10-day length-of-stay limit, is this site you are in:

    Equal to

    About the same

    Better than your original site?

    Why?

22. What do you look for in a beach area?

23. Does the site have to have a sand beach, or is a stony beach acceptable?

24. Is no beach acceptable?

25. Should the bottom be a smooth sandy one, or are other conditions acceptable?

    What other types of conditions would be acceptable?

26. Should the bottom have a gentle slope of should it drop off quickly?

27. Should the beach be accessible only by boat or only by car, or should it be accessible by both?

28. How far from your campsite are you prepared to walk to get to the water? (1-2 minutes, 3-5 minutes, or a 5-10 minute walk)

29. What physical characteristics do you look for in the area surrounding your campsite?

30. Is privacy important to you?

31. Is it more important to you than the location you are now in?

32. Is lack of privacy important enough to necessitate a move to a different campsite?